

# FutureReview

— International Journal of Transition, College, and Career Success —

Editor: John Klatt, Ph.D.

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## FOREWORD

The Future Institute Research Center is proud to publish our full spring 2022 issue of *Future Review: International Journal of Transition, College, and Career Success*. We want to thank the authors for submitting their excellent work to our journal and the reviewers for providing their time and effort in evaluating submissions.

We have three peer reviewed articles in this issue; two address career decision-making and one validates a scale that can be used to assess student-centered learning environments. In the first article, T.J. Warren and Benjamin Forsyth address the process and practices educators use to help people find career paths. They review current practices, introduce some of the challenges students face and propose four solutions to help students with career decision-making. In the second article, Lavious Daniels and J.R. Ratliff conducted a descriptive study to assess the career decision-making behavior of female Emirati college students. The authors measured career decision-making self-efficacy and the factors that helped students make career decisions. Finally, Terry Gibson, Jennifer Morrow, and Louis Rocconi began to develop and validate a new scale, the Emporium Model Motivation Scale (EMMS). Grounded in Self-Determination Theory, this scale assesses the effectiveness of student-focused learning settings.

Working with the authors and the reviewers to produce this issue has been thrilling and satisfying. I hope readers of the journal think deeply about the contributions these articles make to the field.

John Klatt, *Future Review* Editor

# FutureReview

International Journal of Transition, College, and Career Success

**PEER REVIEWED  
RESEARCH ARTICLES**

# Helping Students Pursue Meaningful Work: Identifying Necessary Shifts in Education

T.J. Warren and Benjamin Robert Forsyth

University of Northern Iowa

There is a great need to address the process and practices through which educators assist young people on finding and selecting majors and career paths. Based on empirical evidence, personal experience, and a review of current practices, the authors introduce some of the challenges students are faced with when deciding upon a professional career path. Unfortunately, too many students choose majors based on external influence and assumptions, without an understanding of themselves, their goals, and their values. Furthermore, students are growing up in a “noisy world,” with a conflicting view of the world of work, and a lack of professional guidance as they engage in career exploration. After outlining the challenges students are facing, this article proposes four solutions toward enhancing students’ major and career decision-making. These solutions include 1-on-1 purpose coaching, engaging the student’s inner circle, elevating career exploration standards, and offering greater career exploration opportunities.

Several years ago, one of us (TJ Warren) had a conversation with a first-year college student about changing their major. The conversation was similar to past conversations working in career services centers at a small Midwestern college and a mid-sized Midwestern university. However, this one conversation in particular has been especially meaningful when discussing matters of major selection and career exploration with various colleagues. Below is a portion of the conversation with the student. It is not an exact word-for-word retelling, but it is quite close:

**Student:** "I am no longer interested in business."

**Me:** "How did you decide on business as a major?"

**Student:** "Well, in middle school, I took an assessment that showed me I was good at business. So I was told to follow the business track in high school."

**Me:** "In middle school?!"

**Student:** "Yes."

**Me:** "So you took a bunch of business courses throughout high school?"

**Student:** "Yeah. I took a lot of business classes and I received some transfer credit for a couple of them."

**Me:** "Did you take any other courses besides business courses?"

**Student:** "Not many. A few math classes, a couple science courses, English, Spanish, and a history class."

**Me:** "So you took an assessment in middle school, the assessment indicated you might have an interest in business,

which led you to take a number of business courses all throughout high school, and from there you decided you would major in business because you already had a couple credits that would transfer in. Would you say this is how you chose your major?"

**Student:** "Yeah, I guess so."

**Me:** "Gotcha. Do you even like business?"

**Student:** "Not really."

**Me:** "Did you like it in high school?"

**Student:** "Sort of. Not a lot"

**Me:** "If you really didn't like it in high school and don't like it now, why would you major in it?"

**Student:** "I don't know... My parents strongly encouraged it and I heard you could make quite a bit of money in business. Someone else also told me that I could do anything I wanted with a business degree."

Conversations like this are pretty common for career and advising professionals today. We casually polled ten professionals working within our institution in advising and career services, and of those ten, seven indicated having similar conversations with students in the past. Though not tested in a formal empirical way, we are confident many higher education professionals are having these kinds of conversations on a regular basis.

On a more personal note, the above conversation resonates deeply as we, the authors, had our own personal struggles to figure out what we wanted to major in and what career path to

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pursue at a young age. We are invested in this work because we believe there are many resources and tools to help students explore career and vocational decision-making. This paper explores what impacts students' major and career decision-making processes, and it is an effort to help secondary and postsecondary professionals deeply consider ways to help young people more proactively figure out what they want to do with their lives. The paper first discusses some of the challenges impacting students' major and career decision-making processes, while also providing some evidence regarding those challenges. Next, four solutions and benefits are explored because they have the potential to effectively help young people pursue meaningful work. Finally, the paper concludes with a brief discussion that summarizes the interplay between challenges and solutions, and provides some suggestions for future work.

### Challenges and Evidence

Major societal challenges are typically complex and highly interconnected. Furthermore, solutions to these challenges often require a deep understanding of the theories and issues that exist, as well as anchoring evidence about the nature and scope of the problems (cf. Glaser, 1984). Helping students find and pursue meaningful work is one example of a societal challenge that is both complex and highly interconnected. Therefore, in this section, we describe four challenges impacting students' paths toward finding meaningful work and provide evidence regarding the nature of these challenges. By no means are these the only challenges. Rather, we find them to be some of the most prevalent.

### The College Major

According to Eric St. John (2000) "[t]here is, perhaps, no college decision that is more thought-provoking, gut wrenching and rest-of-your-life oriented—or disoriented—than the choice of a major" (p. 20). To students, choosing a college major is a daunting task and may in fact be the biggest challenge students face when it comes to pursuing meaningful work. Many students believe the major they choose will lock them into one career for the rest of their lives (Bures, 2011). Interestingly though, only 27 percent of college graduates end up in a career related to their major (Burnett & Evans, 2016). This fact can also be confirmed by asking any group of professionals in a room to raise their hand if they are working within an industry directly aligned with their major. Very few typically raise their hands.

With this 'locked-into-one-career' myth in mind, pressure to choose the correct major is amplified when hundreds of majors with various curricula exist within thousands of institutions worldwide. Furthermore, when financial

constraints like rising tuition costs mix with uncertainty about what to major in, the pressure to choose the "right" major can be truly daunting (Perna, 2006).

For incoming college students, only 20 to 50 percent enter higher education as "exploring" or "undecided," and an estimated 75% of students change their major at least once before graduation (Gordon & Steele, 2015). These data align with two recent Gallup studies indicating that graduates feel unsure about their current work. In the Bates-Gallup national study, less than 50% of college graduates succeed in finding purposeful work (Gallup & Bates College, 2019, p. 5, 12) based on agreement levels from eight different statements that graduates were asked about regarding purpose in work. In the Western Governors University Gallup study, only a third of WGU graduates strongly agreed they had an ideal job for themselves compared to less than 25% of their peers nationally (Gallup & Western Governors University, 2019). Although these statistics focus on graduates and their work outside of higher education, the uninformed decision-making process of choosing a major and discovering career interests is likely a crucial contributing factor.

Students who do enter college knowing what they want to major in are most likely making a decision based on little research and/or a lack of self-reflection (Beggs, Bantham, & Taylor, 2008). Students' typical reasons for choosing a major are all across the board. Here is a short list of some questionable reasons students have shared with us over the years:

- To make a lot of money
- Forced by their family to major in a particular course of study
- Transferred in a lot of credit that fulfilled some requirements for a major and felt they could not change directions
- Found out the major was "easy" to complete
- Felt the subject was the only thing they were good at in high school
- Saw a certain type of career on a television or streaming show they liked
- Believed the only way to work with a certain population of people was through a specific major (e.g., education -> working with children)
- Athletics was the focus, not academics or their major
- An assessment "said" they should
- Just needed something to say to people who would ask

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Unfortunately, a large number of students are choosing a major based on influence and assumption, rather than an understanding of themselves, their goals, and their values (Freedman, 2013). This way of making a decision on a major and/or career could potentially impact the college student experience, which impacts retention, engagement, student learning, and goal-setting (Stock & Stock, 2018).

The college major is a major challenge, and it is important that the choice of a major be tempered with the knowledge that employers are often less interested in an individual's undergraduate major than in their "demonstrated capacity to think critically, communicate clearly, and solve complex problems" (Hart Research Associates & Association of American Colleges & Universities, 2015, p. 3). Consideration must also be given to the pace in which new jobs are being created and how employment opportunities are evolving. Opportunities for work constantly fluctuate and new occupations and types of work are developed regularly. One only needs to look at the COVID-19 pandemic to see how types of, and opportunities for, work can experience rapid change. In any case, changing students' perception and understanding of the college major is a necessity.

### **Lack of Guidance**

Another major factor impacting the career decision-making process is how little guidance many young adults receive. Though counselors have received "Fair" to "Poor" marks for helping students think about different kinds of careers they might want to pursue (Johnson & Rochkind, 2010), we do not believe they should shoulder most of the blame. School counselors are understaffed and overworked.

The American School Counselor Association (ASCA) reports the national average caseload for a school counselor today is 455 students (Bray, 2019). This is nearly twice the ASCA's recommended 250:1 student counselor ratio. However, some counselors have as many as 650+ students, while only a few have less than 200 (Baker, 2019). In California and Illinois, the ratio has reached more than 1,000:1 (National Association for College Admission Counseling, 2019). With their high caseloads, school counselors are charged with furthering young people's academic development, college and career readiness, and social-emotional development (Bray, 2019). Counselors will typically juggle course scheduling, short-term counseling, conflict mediation, and college and career advisement. Additionally, some counselors are assigned other tasks like managing a school's standardized testing efforts and/or offering prevention programming. It is no wonder 67% of students reported their high school counselors as "Fair" or

"Poor" in helping them think about different kinds of careers they might want to pursue (Johnson & Rochkind, 2010). In this same report, 48% of students described feeling like another face in the crowd when it came to describing their experiences with counselors in their high school. It is clearly evident students wish to receive further assistance in their major/career decision-making process in high school, yet school counselors are stretched so thin, how can they possibly provide each individual with the guidance they need and deserve?

As we have mentioned, the major/career decision-making process is a daunting task; one that requires a great deal of time, attention, and resources. With high caseloads, some counselors' allotted availability only allows for 50 minutes of career guidance per student in a given school year (Baker, 2019). Additionally, when a student has to wait days to meet with their assigned counselor, and the counselor has very limited knowledge/experience on how to assist a student, it is difficult for students to make a well-informed, thoughtful decision on a college, major, and/or career path within a timely manner. It takes a great deal of skilled guidance to help students understand that the major/career decision-making process is a lifelong process. Unfortunately, when guidance is limited the only students who make up for it are the ones whose social circle is equipped to assist. This is an especially daunting task for the many first-generation college students who have fewer individuals in their social circle who have relevant college experience, which includes parents. According to RTI International (2019), as of a 2016 National Postsecondary Student Aid Study by the U.S. Department of Education, 56% of college students had parents who did not have a bachelor's degree.

It is disheartening to think about the amount of untapped potential because students do not have the proper support to pursue world-serving, problem-solving work. Our students today need further guidance to help them find a better aligned personal and professional path for themselves. Our society needs a future generation of workers who can meet the challenges of our world.

### **A Noisy World**

Distractions often pull people away from what is most important in their lives. For young people, this can often mean robbing away intentional time for getting to know themselves. Not to mention an understanding of the vast complexities of change when it comes to labor markets, the economy, and constant occupational shifts with new and evolving positions. Students, and adults, dedicate very little attention to considering who they are and the professional opportunities

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beyond graduation (Selingo, 2016). In our experience, when students are asked “Who are you?” very few can articulate a strong response. Characteristics, such as personality traits, experiences, skills, interests, values, and goals are often neglected or poorly reflected upon. We must find ways to help young people quiet the noise of distraction and help them consider important vocational and avocational paths. Though avocational paths are often based on enjoyment, they still play a critical part in an individual’s life and need to be considered. For some, avocational paths are more meaningful and fulfilling. In these cases, students must consider vocational paths that allow them to focus on their worthwhile avocational interests or paths where their avocational interests can be incorporated into their vocational paths. These situations can be even more challenging for students to understand and consider, and they require dedicated attention.

We live in a fast-paced, rapidly-changing, constantly-connected world, and today’s students know nothing different. Most of today’s students have never experienced life without internet connectivity (Sladek, 2014). Cell phones and social media play major roles in students’ lives, and families and educators compete with these, sometimes addictive, elements for a slice of their time, attention, and connection (Sahin, Ozdemir, Unsal, & Temiz, 2013). Speaking of time, many young people today do not have much time to spare, or they are operating on unstructured time (Brown, Nobiling, Teufel, & Birch, 2011; Moeller, Brackett, Ivcevic, & White, 2020). Schedules become filled with instrument lessons, choir practices, summer camps, and sports leagues. Many of these activities provide great benefits, but they also tend to consume a lot of children’s time and attention, not to mention parents’ bank accounts (Bennett, Lutz, & Jayaram, 2012; Hau & Yeung, 2015). More concerning is how bombarding media and marketing elements are to students. Messages and content are constantly thrown at students telling them who they should be, how they should look, and ways they should act (Brooks, Longstreet, & Califf, 2017). The amount of information and content available to high school and collegiate students is overwhelming, and it is only going to continue to grow.

It is worth noting that even employers are contributing to the noise. Recently, some employers throughout the United States have started recruiting high school students to work for them as they earn their college degree at a nearby community college (Moran, 2019; Society for Human Resource Management, 2014). While these working students attend college, their employers will agree to pay for their tuition and typically guarantee a full-time position with the company upon graduation, so long as they meet a few stipulations (e.g., working so many years with the company). Many would argue

this is a great “deal” professionally, and to an extent, it is. Guaranteed full-time employment upon graduation and paid tuition is outstanding, especially in a post-COVID, high-tuition economy. However, if the workplace does not have well-established career development practices in place, and is unwilling to support a young employee’s change in directions, it can pigeonhole a student and eliminate their opportunity to explore various experiences and paths that may be more aligned with their interests, skills, and desires. These recruited students only see a single lens of the working world throughout their college career, which could be detrimental. It is possible the benefits outweigh the disadvantages. However, we argue these practices hinder more than help, because a worthwhile career of purpose often requires a wider view of the world. Borrowing loosely from Socrates, the unexamined career is not worth pursuing.

As the world continues to evolve more quickly, it continues to get “noisier.” Cell phones, computers, TV, streaming services, ads, social media, and video games all contribute to this “noise” or distraction. In her book, *iGen: Why Today’s Super-Connected Kids are Growing Up Less Rebellious, More Tolerant, Less Happy—And Completely Unprepared for Adulthood*, author Jean Twenge (2017) stated that high school seniors today spend approximately 2.25 hours a day texting on their cell phones, about 2 hours a day on the internet, 1.5 hours a day gaming, and about .5 hours on video chat. She argued that even if there is multitasking with some of these activities, the amount of time available for other activities, including meaningful connections with others and adequate sleep, becomes crowded out.

Even more alarming, students recognize they are distracted by technology (Attia, Baig, Marzouk & Khan, 2017; Galloway, 2017), yet they continue to make themselves even more distracted (Hazelrigg, 2019; Wilmer, Sherman & Chein, 2017). At this rate, portions of society’s constant connection—or addiction—to technology alone is enough to keep us distracted from what is most important in our lives, and probably will not change anytime soon.

Today’s youth appear to be the most distracted individuals of all time. Generation Z or iGen (ages 10-25) has never known a time before the internet, and this trend will only continue with incoming generations, including Generation Alpha (ages 0-9). Future generations will continue to experience these harmful distractions if proactive measures are not undertaken.

### **A Conflicting View about the World of Work**

Despite being a highly interconnected and informed global community, many young adults still struggle to comprehend



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the operational dynamics of the workplace. After all, today's youth are growing up more slowly and many have never held a paying job during high school (Twenge, 2017). Additionally, the amount of opportunities available to students beyond graduation are virtually limitless, making it more of a challenge for students to discern their future plans. For these reasons, students have a very unclear understanding and conflicting view about the world of work.

In 2015, the National Association for Colleges and Employers (NACE) launched a Career Readiness initiative to determine a definition and competencies for career readiness. Since then, colleges and universities in partnership with employers throughout the country have come to know, understand, and appreciate the NACE Career Readiness competencies as a means of determining whether or not students have the skills necessary to enter and become part of a strong, productive workforce (for further details, see <https://www.nacweb.org/career-readiness/competencies/career-readiness-resources/>).

The NACE Career Readiness initiative recently produced a study that found employers and graduating seniors differed greatly when it came to rating proficiency in competencies such as professionalism/work ethic, oral written communications, and leadership (2018). The biggest disparity involved perceptions about professionalism and work ethic. A massive 89.4% percent of students considered themselves proficient in this area, while only 42.5% of employers surveyed agreed. These results clearly show the discrepancy between how students and their future employers feel they are prepared for entering the workforce.

In addition to work preparation concerns, the number of opportunities available to students can seem pretty straightforward, but still paralyzing. Depending on the type of community or school district one grows up in, some students seem to have a limited understanding of what they might be able to do. Consider, for example, a student from the rural Midwest who has never traveled to another part of the world and is only aware of the professions within their own community (doctor, lawyer, dentist, teacher, social worker, mechanic, construction worker, police officer, business owner, veterinarian, athletic trainer/coach, or military). Knowing only what they know, and the possible lack of guidance from their school counselor or other external influences, may lead a student to believe this small set of professions are the only options, when in reality the number of options is quite large. On the Occupational Information Network (O\*NET) webpage (<https://www.onetonline.org/>), one will find information on more than 1,000 occupations within the U.S. economy (2020). What's more, 65% of today's youth will end up working in

jobs that do not currently exist (Schwab & Samans, 2016). There are jobs today that did not exist five or ten years ago, and with each passing day, new careers are created making accurate knowledge about the world of work all the more challenging to discern. A narrow view of the world and virtually unlimited opportunities creates the perfect storm, or distraction, for students trying to make an informed, reflective decision about their career path.

### **Solutions and Benefits**

The aforementioned challenges do not address all the contributing factors that make the career decision-making process so challenging for students today, but we do believe what we have written about are some of the most challenging. These challenges need effective solutions, which will require shifts regarding how students are educated. These shifts need not be revolutionary, but they will require purposeful effort.

In this section we offer up four possible solutions with their accompanied benefits that could help students better pursue meaningful work. These solutions include 1-on-1 purpose coaching, engaging the student's inner circle, elevating career development standards, greater career exploration opportunities.

#### **1-on-1 Purpose Coaching**

Offering career exploration support to students in a 1-on-1 setting is not new. For many years, 1-on-1 career counseling has been a practice and resource for helping students figure out career paths beyond high school graduation (Slaten & Werriden, 2018). School counselors, formerly known as guidance counselors, frequently engage in conversations with students about possible careers, potential postsecondary institutions, and career assessments. These are valuable conversations for students and worth having, but we want to encourage a specific kind of 1-on-1 conversation to take place more frequently; a coaching conversation focused on helping students consider their purpose(s).

One of us (TJ Warren) regularly engages in "purpose coaching" conversations. These conversations typically involve a student who is feeling lost and does not know what major or career path they want to pursue. In purpose coaching, career professionals take a few moments to help students consider what they do not want. Narrowing down major and occupation options is a critical part of the exploration process and arguably one of the easiest steps a student can take initially. Having too many options can cause a student to enter a stage of indecision, delaying their progress. After narrowing down the options, the career professional asks specific questions that help a student discern their interests, values,

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skills, and passions. Many students have difficulty articulating these characteristics on their own, as many have never been given a chance to look inward at their true selves. It is amazing to see the “ah-ha” moments students have as they consider these characteristics and get to know themselves again.

In cases where students struggle to answer questions about themselves, we recommend several assessments to help aid the process such as CliftonStrengths, Myers-Briggs Type Indicator (MBTI), MCODE, and YouScience amongst the hundreds of assessments out there. Assessments can be of value to students and should be administered in a way where a career professional can walk alongside the student as they review their results. The assessments we recommend do have costs associated with them, but there are many available that are free to use on websites such as CareerOneStop and on O\*Net Online.

Another valuable conversation worth engaging in during 1-on-1 “purpose coaching” includes helping students consider their needs and struggles. For example, if a student is regionally bound to an area, by choice or circumstance, this limits the opportunities available to them, for better or worse. A student living in Colorado who needs to be close to family may struggle to pursue a career opportunity in marine biology. Additionally, identifying struggles a student has faced may point them to a possible, motivated path where they could work to help others navigate experiencing something similar to what they experienced. These kinds of reflections point students toward the kinds of problems they might want to solve.

Purpose coaching can help students take a frequently given reason for pursuing a career path and help them to make that reason productive. When directly asked, “what do you want to do with your life?,” nearly every student responds by saying, “I want to help people.” This is a valuable problem-solving, service-oriented response that is unfortunately too vague and generic to be of much use in major/career decision-making. However, a student is much more likely to productively narrow their path if they can be guided to explain how and why they want to help people (Schultze & Miller, 2004; Warren, 2020). Considering the “how” and the “why” for helping people often leads a student toward linking their desire to help with solving complex and challenging problems like ending poverty or improving social justice. Many students are especially motivated to work on these large causes, precisely because it links to how they can serve important needs across the world. Some powerful questions--though challenging--to ask students are what problem(s) do you want to solve and/or how would you go about solving them? These questions tend to open-up some possibilities and options for students to take, especially when they are asked by an

individual willing to give further guidance, direction, and possible pathways. For further assistance to help guide these conversations with students, one could turn to SparkPath Challenge Cards and/or the Sustainable Development Goals established in 2015 by the United Nations (LeBlanc, 2015). Tools and resources such as these can get students to tangibly consider problems they might want to help solve and lead a student to next steps.

Yet another important part of 1-on-1 purpose coaching is to equip students with the understanding that pursuing one’s purpose(s) is a life-long journey, and the notion that doing what one loves and was put on the planet to do is in fact a life-long process. Most professionals today are not working in their first work interest area or degree focus (Pickerell & Neault, 2019). Most have started somewhere only to have developed their skills, found another interest or passion, struggled with a personal challenge, changed a value, etc. When helping students understand that pursuing one’s purpose is a life-long journey, career professionals can refer to the metaphor of climbing a mountain. Walking straight up a mountain is probably the shortest way to the top, but the terrain of a mountain does not allow for a peaceful, linear walk. The road to a summit is filled with rough terrain, falls, lateral shifts, and sometimes hardship, and when most people arrive at the top, they arrive only to notice there are more peaks or mountains to climb. We must emphasize to students that even after four years of high school, two to six years of college, military, or some other post-high school graduate experience, they may still not be brought directly to their calling. As Baz Luhrmann once said in his song, *Everybody’s Free (to Wear Sunscreen)*: “The most interesting people I know didn’t know at 22 what they wanted to do with their lives. Some of the most interesting 40-year-olds I know still don’t.” (1998, 02:12).

As we alluded to in the challenges, it is no surprise that 1-on-1 purpose coaching requires a great deal of time and effort, and for counselors with caseloads of hundreds of students, it is highly unlikely they can engage in this coaching alone. In fact, they cannot do it alone. Counselors can incorporate 1-on-1 purpose coaching into their current practices, but they will certainly need to rely on others to aid them in this work. We recommend getting other individuals involved within school districts, homes, and communities. Fortunately, purpose coaching is work all educators, parents, and community members can engage in. We talk a little bit about getting others involved in the next section, but it is important to emphasize the need for others to assist school counselors with 1-on-1 purpose coaching. In cases where a student needs more time to consider and discern, postsecondary educators can take the “baton” and assist students in these ways. Equipping all

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educators (secondary and postsecondary), parents, and various other community members can help in this critically important work and better lead students in positive directions both vocationally and avocationally.

### **Engaging the Inner Circle of the Student to Assist with Their Exploratory Process**

We have stressed the importance of students taking time to look inward at who they are and how they might want to contribute to society personally and professionally. Although the “inner work” a student engages in is important, we cannot dismiss the fact that the inner circle of a student can be incredibly valuable to their decision-making process. Those who love, care for, befriend, and mentor an individual can perceive qualities, characteristics, and values in a student that they themselves may not see. Thus, one solution toward helping a student pursue meaningful work is to encourage and equip a student’s inner circle to get involved in the exploratory process.

Getting a student’s inner circle involved does not have to be difficult. In fact, many parents and guardians are naturally doing the work already and don’t realize it. In their guide for parents and guardians, the Canadian Education and Research Institute for Counselling (CERIC) emphasizes the notion that parents are in fact children’s first teachers. The significance of parents and guardians getting involved in children’s activities, encouraging their curiosity, and paying close attention to their interests, preferences, and abilities are observations they can further share with a child as they grow and develop (Cahill & Furey, 2017b). We highly recommend parents and guardians view this guide, or others like it, as it emphasizes the key role they can play in the career exploration process which begins at a very early age.

CERIC also has a guide for educators (Cahill & Furey, 2017a). Though school counselors can play a major role in the exploratory process, it is clear their schedules do not allow for the opportunity to connect with every student and engage in the necessary deep, meaningful, and sometimes time-consuming purpose coaching conversations. Therefore, equipping educators to help with this process, can be of great benefit to students.

The phrase, “it takes a village” certainly applies when it comes to helping young people determine their vocational and avocational paths. We are mindful of an illustration our University President shares in his remarks at each graduation ceremony. He asks groups of the audience to stand up if they are supporting a graduate on that day. He asks parents, guardians, grandparents, siblings, friends, educators, and others to rise in support of the graduate they are honoring. Eventually, the entire arena, minus the graduates, are standing

in support of their graduate. He goes on to say,

Graduates, look around you. You are here today because of the people that stand and gather around you to celebrate this day. Their commitment to your life, to bringing you into this world, to training you, to teaching you, to guiding you, to caring for you, to giving you the things you need in your life to be successful, your education...These are the people that made today happen... [J]oin me in thanking these people who made this day possible for you (Nook, 2019).

We all play a significant role in many individuals’ lives. Counselors, educators, and parents/guardians should all recognize their importance and be equipped to support students in their career exploration process.

We also want to recognize some of the challenges within a student’s inner circle. Some students do not have a solid inner circle to guide and lead them appropriately through 1-on-1 coaching and exploratory methods. Additionally, there may be cases where students’ inner circles are more prescriptive in nature and they are pressured into certain pathways that perhaps go against their desires and interests. These are challenging situations to detect and navigate. Therefore, training all educators to better spot these situations and engage in further conversation with students is key to helping them navigate these situations. This stresses the fact that an equipped educator and/or counselor is all the more important to have within every student’s inner circle where 1-on-1 purpose coaching is more likely to occur. Furthermore, certain students must be encouraged and equipped to engage in the tough conversations that may go against some of the pressured pathways emphasized within their inner circles. The additional training for educators and parents may also extend to students as well, better equipping them to engage in their decision-making processes and navigating challenging conversations. Again, this work truly “takes a village”.

The inner circle, when implemented well, can be a powerful method for helping students in their vocational discernment process. When students look inward at themselves and engage in meaningful conversations with their teachers, counselors, parents, and friends about who they are, what they do well, what they enjoy, what problems they want to solve, etc. they are more likely to be resilient and persistent towards pursuing their unique purpose(s) (Rounds & Su, 2014).

### **Elevating the Career Development Standard(s) in P-12 and Higher Education**

The importance of educational standards and benchmarks, and holding educators accountable to educating our students to be productive, contributing, life-long learners cannot be overstated. Standards and benchmarks are essential, and they

have been established for nearly every educational subject, as well as for the ethical and professional practices of administrators and teachers. The standards that have been heavily emphasized in recent years revolve around science, technology, engineering, mathematics (STEM), and literacy; all of which prepare students for our fast-paced, complex, rapidly-changing world and better a student's critical-thinking and problem-solving skills on a broader, holistic level. However, we believe the career development standards in P-12 education have been overshadowed by these recent STEM and literacy pushes, and this overshadowing may in fact be contributing to the vocational discernment challenges of students. With more focus on STEM and literacy, there is less opportunity for exploratory measures and practices. We strongly encourage educators to emphasize the career development standards to better serve students in their career and life exploration practices. Our suggestion is not to take away from the STEM and literacy standards, as we know these are important. Rather, we believe elevating career development standards in the minds of educators will better prepare students in their vocational and avocational plans.

It is worth noting that many states and the nation as a whole believe in standards for career development and employability. For example, the state standards we are most familiar with, the Iowa Core Standards, have employability standards throughout grades K-12 (Iowa Department of Education, 2010). Many other states have similar standards that align well with the NACE Career Readiness standards (National Association for Colleges and Employees, 2018). However, one has to wonder if these standards get much attention. With a seemingly ubiquitous push for young people to pursue STEM fields—which are a vital and important part of our current workforce—one has to wonder if wider career exploration and the general pursuit of purpose have detrimentally been put to the wayside.

Though the focus of this section is on P-12 education, we still recognize that standards and practices for career guidance should continue into postsecondary education. Practices within higher education can be small, such as having every student complete a personality inventory and/or participate in a career readiness program that encourages exploration. However, larger endeavors are also important to pursue like re-aligning general education requirements for exploratory measures, limiting students' major choice until their sophomore year of college, or rethinking the college major altogether. These larger scale initiatives may seem too radical for some people, but we include them here to illustrate that more can be done toward elevating the career development and exploratory processes of students in higher education.

### **Greater Career Exploration Opportunities throughout P-12 Education**

Another way in which students can be helped in their major and career decision-making processes is expanding the number of opportunities for P-12 students to engage in career exploration. In short, we recommend greater career development activity as early as elementary school (Pulliam & Bartek, 2018). Creating more P-12 career exploration opportunities is an extension of elevating the career development standards, but stronger standards without accompanying concrete action would still not be enough. Getting students to engage in concrete, hands-on learning experiences to see and feel what the day-to-day operations are in a line of work is important to begin early and often. These exercises can take place through the classroom or through large-scale programmatic experiences, and at various stages in a student's education.

When one thinks about career development, we tend to think of it merely as preparing for the world of work. This is a major part of career development, but career development is so much more. As stated in CERIC's guide for educators (Cahill & Furey, 2017a), "career development is not just about jobs, work, and careers" (p.12). Rather, career development is a lifelong process that involves constant growth, change, and adaptation. With career development taking place every day in a student's life, even at a young age, greater frequency of engaging in career development exercises and activities seems essential to students. A great place for these exercises is within the classroom (Larson & Miller, 2011).

Providing opportunities for students while learning core subject matter is possible, even in the early stages of a student's P-12 educational journey. Ways in which students can explore and engage in career development within the classroom are abundant. Here are just a few of those ways:

- Incorporate relevant career questions to lessons, problems, and topics (i.e., Who would be interested in solving this problem? What kind of job might help solve this problem?)
- Bring in guest speakers and parents to talk about their jobs
- Allow space for students to engage in role-playing activities and scenarios that not only focus on problem-solving, but also imaginary career-oriented roles
- Have students write about what they like to do and illustrate those interests
- Schedule field trips to local businesses and organizations to learn about certain careers
- Set aside a week or more for students to share about a field of interest and allow them to talk with other students about fields they learned about

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- Encourage involvement in organizations outside of school that build professional networking and skills (Lego leagues, Boy/Girl Scouts, etc.)
- Have parents and teachers share career-related observations of their child/student to each other during teacher conferences

In addition to classroom engagement exercises that are appropriate at all grades, middle- and high school students can and should participate in larger scale, programmatic, community partnership-based, experiential learning programs, or internship, apprenticeship, and practicum opportunities. Two school districts within the community we live in have strong experiential learning programs that are actively partnered with local businesses and organizations. One includes a Career Center that provides 18 career tracks students can engage in as a part of the district's curriculum. Students investigate career pathways such as nursing, digital communication, manufacturing, and early childhood education through hands-on course instruction and practice. The other school district offers an elective course designed to take students out of the traditional classroom for half the day, each day of the semester. During this time, they are immersed in professional environments that develop their problem-solving and professional skills as they work on projects for real business clients. Other opportunities such as internships, practica, and apprenticeships not only equip students with the necessary tools and knowledge to perform a particular type of work, but also help students more actively investigate a profession for whether or not it fits their interests, skills, values, and passions. We believe these kinds of opportunities ought to be widely replicated.

One other option especially for high school seniors may include taking a "gap-year." A gap-year is much like a sabbatical year in which individuals take part in various educational and developmental activities that exposes them to the real world, as well as the challenges within it. This can be a productive exercise for exploring students if they do not know what they want to do (cf. Martin, 2010). However, a gap-year also requires students to be disciplined and willing to take initiative seeking out their own opportunities to experience the world around them in a different way. Although a gap-year may not be right for every student, the opportunity to engage in one ought to be more widely available.

Creating more exploratory opportunities throughout students' educational experience is a worthwhile investment for school districts and individual students (Cahill & Furey, 2017a; Patton & Porfelli, 2007). However, it is not an easy one. Initiatives such as a career center and internship program

can be costly, at least initially, but we feel the benefits outweigh the disadvantages.

### Conclusion

In closing, we wish to clearly state several important lines of work based on the solutions that we recommend in this paper (i.e., 1-on-1 purpose coaching, engaging the student's inner circle, elevating career development standards, greater career exploration opportunities). First, it is important for school counseling and career services programs to continue to equip professionals with quality 1-on-1 counseling and coaching skills, which includes purpose coaching. Second, we recommend that school counselors and career services professionals resist the temptation to provide support to students as if they were insulated from a student's inner circle. Third, school counselors and career services professional organizations can continue to advocate for greater awareness and prominence of career exploration standards in P-12 education and beyond. Lastly, we strongly advocate for efforts that push for programmatic, purposeful career exploration opportunities within all levels of education. We are hopeful that all of these endeavors will greatly enhance the process and practices for students' major and career decision-making.

The transition from school to work is something important enough that appropriate resources, practices, time, and personnel be brought to bear upon it in the most effective and influential way. Choosing what to study, and considering possible career paths, requires attention so that it is not put off until the last moment. Students do not, and should not, have to make these decisions alone. Informed career professionals and their professional organizations do have the skills and knowledge necessary to help students make sense of a noisy world of options and conflicting perspectives about the world of work. However, they should not have to do this work alone, within short time constraints or without adequate institutional support. Choosing one's vocation and avocation is a process that begins earlier than secondary education and requires engagement with many members of a student's inner circle of friends, family, and trusted educators. P-12 and postsecondary professionals need to think more deeply about how they are preparing and assisting students with figuring out their future, and we believe 1-on-1 purpose coaching is an important part of delivering this quality assistance. Educators, parents, and counselors must prioritize this work of helping young people understand who they are and how they want to serve the world, professionally and personally.

## HELPING STUDENTS PURSUE MEANINGFUL WORK

### References

- Attia, N. A., Baig, L., Marzouk, Y. I., & Khan, A. (2017). The potential effect of technology and distractions on undergraduate students' concentration. *Pakistan Journal of Medical Sciences*, 33(4), 860–865.
- Baker, C. (2019). *College and career readiness guidance: Where we are today and where we need to be tomorrow*. Paper presented at the World Future Forum, April, Chicago, IL.
- Beggs, J., Bantham, J., & Taylor, S. (2008). Distinguishing the factors influencing college students' choice of major. *College Student Journal*, 42(2), 381–394.
- Bennett, P. R., Lutz, A. C., & Jayaram, L. (2012). Beyond the schoolyard: The role of parenting logics, financial resources, and social institutions in the social class gap in structured activity participation. *Sociology of Education*, 85(2), 131-157.
- Bray, B. (2019, May 10). *One school counselor per 455 students: Nationwide average improves*. Counseling Today.
- Brooks, S., Longstreet, P., & Califf, C. (2017). Social media induced technostress and its impact on internet addiction: A distraction-conflict theory perspective. *AIS Transactions on Human-Computer Interaction*, 9(2), 99-122. <https://aisel.aisnet.org/thci/vol9/iss2/2>
- Brown, S. L., Nobiling, B. D., Teufel, J., & Birch, D. A. (2011). Are kids too busy? Early adolescents' perceptions of discretionary activities, overscheduling, and stress. *Journal of School Health*, 81(9), 574-580.
- Bures, K. (2011). Why choosing a major is not choosing a career (...and not the end of the world). *Academic Advising Today*, 34(3).
- Cahill, M., & Furey, E. (2017a). *The early years: Career development for young children: A guide for educators*. CERIC: Toronto
- Cahill, M., & Furey, E. (2017b). *The early years: Career development for young children: A guide for parents/guardians*. CERIC: Toronto
- Freedman, L. (2013). The developmental disconnect in choosing a major: Why institutions should prohibit choice until second year. *The Mentor: Innovative Scholarship on Academic Advising*, 15. <https://doi.org/10.26209/mj1561278>
- Galloway, C. (2017). Blink and they're gone: PR and the battle for attention. *Public Relations Review*, 43(5), 969-977.
- Gallup, & Bates College. (2019). *Forging pathways to purposeful work: the role of higher education*. Lewiston, ME.
- Gallup, & Western Governors University. (2019). *Great jobs, great lives-Gallup study of recent Western Governors University Alumni*. Salt Lake City, UT.
- Glaser, R. (1984). Education and thinking: The role of knowledge. *American psychologist*, 39(2), 93-104.
- Gordon, V. N., & Steele, G. E. (2015). *The undecided college student: An academic and career advising challenge* (4th ed.). Springfield, IL: Charles C. Thomas.
- Hart Research Associates & Association of American Colleges & Universities. (2015). *Falling short? College learning and career success*. Washington, DC.
- Hao, L., & Yeung, W. J. (2015). Parental spending on school-age children: Structural stratification and parental expectation. *Demography*, 52(3), 835–860.
- Hazelrigg, N. (2019). Survey: Nearly half of students distracted by technology. *Inside Higher Ed* <https://www.insidehighered.com/digital-learning/article/2019/07/10/survey-shows-nearly-half-students-distracted-technology>
- Iowa Department of Education (2010). *Iowa core K-12 21st century skills*. [https://iowacore.gov/sites/default/files/k-12\\_21stcenturyskills.pdf](https://iowacore.gov/sites/default/files/k-12_21stcenturyskills.pdf)
- John, E. S. (2000). Do majors matter? *Black Issues in Higher Education*, 17(4), 20.
- Johnson, J., & Rochkind, J. (2010). *Can I get a little advice here? How an overstretched high school guidance system is undermining students' college Aspirations*. San Francisco, CA: Public Agenda.

## HELPING STUDENTS PURSUE MEANINGFUL WORK

- Larson, L. C., & Miller, T. N. (2011) 21st Century Skills: Prepare Students for the Future, *Kappa Delta Pi Record*, 47(3), 121-123.
- Le Blanc, D. (2015). Towards integration at last? The sustainable development goals as a network of targets. *Sustainable Development*, 23(3), 176-187.
- Luhrmann, B. (1998). Everybody's free (to wear sunscreen). On *Something for Everybody*. EMI.
- Martin, A. J. (2010). Should students have a gap year? Motivation and performance factors relevant to time out after completing school. *Journal of Educational Psychology*, 102(3), 561-576.
- Moran, G. (2019, April 26). Companies are getting creative to recruit—as early as middle school. *Fast Company*. <https://www.fastcompany.com/90336990/companies-are-getting-creative-to-recruit-as-early-as-middle-school>
- Moeller, J., Brackett, M. A., Ivcevic, Z., & White, A. E. (2020). High school students' feelings: Discoveries from a large national survey and an experience sampling study. *Learning and Instruction*, 66. <https://doi.org/10.1016/j.learninstruc.2019.101301>
- National Association for College Admission Counseling. (2019). State-by-state student-to-counselor ratio maps by school district: Data visualizations. *NACAC Research Tableau Public Site*. <https://public.tableau.com/profile/nacac.research#!/>
- National Association for Colleges and Employees. (2018, February, 19). *Are college graduates "career ready?"*. <https://www.nacaweb.org/career-readiness/competencies/are-college-graduates-career-ready/>
- Nook, M. A. (2019, May 11). *Closing remarks*. University of Northern Iowa Spring Commencement, Cedar Falls, IA.
- Patton, W., & Porfeli, E. J. (2007). Career exploration for children and adolescents. In V. B. Skorikov & W. Patton (Eds.), *Career development in childhood and adolescence* (p. 47-69). Brill Sense.
- Perna, L. W. (2006). Studying college access and choice: A proposed conceptual model. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 21, pp. 99–157). Dordrecht: Springer.
- Pickerell, D. A., & Neault, R. A. (2019). Maximizing career engagement across a lifetime of transitions. In J. Maree (Ed.) *Handbook of innovative career counselling* (pp. 195-211). Springer.
- Pulliam, N., & Bartek, S. (2018). College and career readiness in elementary schools. *International Electronic Journal of Elementary Education*, 10(3), 355-360.
- Rounds, J., & Su, R. (2014). The nature and power of interests. *Current Directions in Psychological Science*, 23(2), 98-103.
- RTI International. (2019). *First-generation College Students: Demographic Characteristics and Postsecondary Enrollment*. Washington, DC: NASPA. Retrieved from <https://firstgen.naspa.org/files/dmfile/FactSheet-01.pdf>
- Sahin, S., Ozdemir, K., Unsal, A., & Temiz, N. (2013). Evaluation of mobile phone addiction level and sleep quality in university students. *Pakistan Journal of Medical Sciences*, 29(4), 913-918.
- Schultze, G., & Miller, C. (2004). The search for meaning and career development. *Career Development International*, 9(2), 142-152.
- Schwab, K., & Samans, R. (2016). The future of jobs: Employment, skills and workforce strategy for the fourth industrial revolution. Global challenge insight report. In *World Economic Forum*. [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf)
- Selingo, J. (2016). Two-thirds of college grads struggle to launch their careers. *Harvard Business Review*. <https://hbr.org/2016/05/two-thirds-of-college-grads-struggle-to-launch-their-careers>
- Society for Human Resource Management. (2014, February 14). *Employers, students benefit from high school internships*. <https://www.shrm.org/resourcesandtools/hr-topics/organizational-and-employee-development/pages/high-school-internships.aspx>
- Sladek, S., & Grabinger, A. (2014). Gen Z: The first generation of the 21st century has arrived!. *XYZ University*. [http://xyzuniversity.com/wp-content/uploads/2014/02/GenZ\\_Final.pdf](http://xyzuniversity.com/wp-content/uploads/2014/02/GenZ_Final.pdf)

## HELPING STUDENTS PURSUE MEANINGFUL WORK

- Slaten, C., & Werriden, A. W. (2018). General history and conceptual frameworks of school counseling. In C. T. Dollarhide & M. E. Lemberger-Truelove, (Eds.). *Theories of school counseling for the 21st century* (pp. 13-24). Oxford University Press.
- Stock, P., & Stock, E. (2018). Factors that influence a college student's choice of an academic major and minor. *Center for Scholastic Inquiry*, 9(1), 56-78.
- Twenge, J. M. (2017). *iGen: Why today's super-connected kids are growing up less rebellious, more tolerant, less happy—and completely unprepared for adulthood—and what that means for the rest of us*. Simon and Schuster.
- Warren, T. J., (2020, July 14). *Purpose is not found. It is pursued*. LinkedIn.  
<https://www.linkedin.com/pulse/purpose-found-pursued-tj-warren/>
- Wilmer, H. H., Sherman, L. E., & Chein, J. M. (2017). Smartphones and cognition: A review of research exploring the links between mobile technology habits and cognitive functioning. *Frontiers in Psychology*, 8.  
<https://doi.org/10.3389/fpsyg.2017.00605>



# Career Decision-Making: An Emirati Female Perspective

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This original research purpose was to assess the career decision-making behavior of female Emirati college students. More specifically, this study sought to examine the perceptions these students hold regarding their career decision-making ability. This descriptive study employed the Career Development Self-Efficacy Scale Short Form (CDSE-SF) and a focus group to examine the perceptions Emirati female students hold regarding their ability to make career decisions. Undergraduate students (n=230) from the United Arab Emirates (UAE) participated in this study. The results indicated participants had moderate confidence in career decision-making ability. No significant differences in students' career decision-making self-efficacy (CDSE) were found whether students attended private or public high schools. Through the utilization of a focus group, researchers found that friends and family were essential in the career decision-making process. Themes from the focus group also revealed that taking introductory courses helped to increase CDSE. There is limited literature on the career perceptions on female Emirati college students. This paper offers insight into concrete practices on how to serve this population in career development and labor market preparation. Exploring a variety of social and cultural experiences of students are core to being able to boost career decision-making confidence. The authors suggest that effective culturally appropriate resources to promote student engagement in the career decision-making process are needed.

**Keywords:** self-efficacy, career decision-making, United Arab Emirates

Boasting a robust economy and home to some of the wealthiest people in the world, the United Arab Emirates (UAE) has seen phenomenal growth since its inception in 1975. This growth can be witnessed in all aspects of society, including an increasing focus on preparing its citizenry to join the workforce (Gaad et al., 2006). The country's patriarchal society has traditionally seen males and expatriates dominate the workforce. However, Emirati women are making great strides to enter the workforce. According to Al Awad (2018), "(male) dominance has decreased substantially from around 40 national males for each national female in 1975 to around 2 males per female in 2015. Similarly, the ratio has decreased for expatriates from around 28 in 1975 to less than 6 in 2015" (p.20).

Al Awad also notes that increases in educational attainment, social acceptance, and an increase in the value of Emirati females' work are all factors that contribute to women's increased participation in the labour force (2018). Based on a report from the Dubai Women Establishment, Emirati women now comprise 28% of the labor force amongst the local population (2018). This same report also notes that Emirati women are now exercising the power of choice regarding when and how they enter the labor force.

Over the years, academics have spent significant efforts researching the dynamic and changing roles of women in Arab countries (Beitler & Martinez, 2010; Crabtree, 2007; Oraimi, 2011; Schvaneveldt et al., 2005; Zuhur, 2003). In many of these countries, the roles of women have undergone significant evolution. Many women have decided to step out of the traditional roles of mother, wife, and caretaker and enter the workforce. Research examining the career decision-making behavior of this population is emerging as well (Abdalla, 1995; Al-Darmaki, 2012; Dubai Women Establishment, 2018; Gallant & Pounder, 2008; Omair, 2010).

The purpose of this explanatory mixed-methods study was to examine the career decision-making behavior of female Emirati students. The quantitative strand of the study sought to examine the perceptions these students hold regarding their own career decision-making ability. In the qualitative strand of the study, researchers sought to understand Emiratis' perceptions of career decision making in their own words. It is likely the results will provide some insight into the issues these students encounter when making such important decisions. This information could influence faculty, practitioners, and administrators when developing programs and/or policies regarding the career development needs of this

population. The following research questions by strand of the study guided the researchers in this study:

Quantitative Strand

RQ1. What level of confidence do Emirati females have about their ability to make career decisions?

RQ2. Are there differences in Emirati females in career development self-efficacy (CDSE) based on attending private vs. public high school?

RQ3. Are there differences in Emirati female students' perceptions of CDSE based on family involvement in career decision making?

Qualitative Strand

RQ4. How do Emirati females describe their experience with career decision making in their culture?

**Changing Roles of Emirati Women**

The role of the Emirati females has and continues to change over the years. In reference to Emirati women, Orami (2011) notes that,

“historically, women played multiple roles in traditional societies and helped to support the family. However, after the discovery of oil and the region’s entry into a new era of production, society’s need for women’s labor decreased” (p.80).

Due to this weakened economic position, women were strongly encouraged to follow traditional roles such as homemaker, wife, and mother (Crabtree, 2007; Schvaneveldt et al., 2005). The opportunity to pursue higher education was limited. Literature states that families placed little value on investing in the post-secondary education of women as the female would eventually leave the household and join another family (Harfoush-Strickland, 1996). Historically, the idea of educated Emirati women entering the workforce may have been fleeting at best.

The value that women add to a country’s economy has become increasingly evident. Hajeri and Vammalle (2020) posit that “women typically account for half of a country’s talent base, which leads to faster economic growth through boosting productivity and diversification of the economy” (p. 7). The UAE has and continues to set precedence in encouraging Emirati women to enter the workforce. To help strengthen the voice of Emirati women, the UAE government has imposed a quota that mandates 50% of seats in national parliaments and local governments be held by women. Emiratisation, a governmental intervention that seeks to restore the imbalance of an increasing expatriate workforce, has also aided in the addition of Emirati women in the workforce (Pech, 2009). Today Emirati women can be found in many diverse occupations. The UAE Gender Balance

Council notes that Emirati women account for more than 40% of employees in the education sector, 35% in the health sector, and approximately 20% in social affairs (2019).

Despite these significant achievements, overall Emirati female participation in the UAE workforce remains low when compared to the international average (UN, 2018). Composed of seven emirates, employment rates vary from one emirate to the next. The Statistics Center of Abu Dhabi, the capital of the UAE, records its overall unemployment rate as 5.2% with the 20-24 years age group accounting for the largest proportion of this number at 25.9% (2019). The national female unemployment rate is slightly higher than that of local men at 12.1%. The UAE is also home to a host of international businesses and a constantly growing skilled expatriate workforce. EdArabia (2021) reports that the expatriate community constitutes 88.5% of the total UAE population. This highly diverse community may provide even more insight into reasons for low female Emirati employment; that of competition. Traditionally organizations often use the baccalaureate degree as a screening tool for those wanting to enter professional careers with the promise of career growth (Pascarella & Terenzini, 2005). Such may be the case in the UAE as well. To address these challenges, many Emiratis are seeking baccalaureate degrees in order to gain access to professional careers. This access requires confidence in selecting majors and careers appropriate for the current market.

According to the Statistics Center for Abu Dhabi, approximately 44,000 UAE nationals are enrolled in college (2019). Of the 44,000+ nationals enrolled in university, approximately 66% are female. According to Sherif (1999), the increase in female college attendance is due to several factors including: females’ personal desire to attend college to help obtain career goals, a realization by some in society that an educated woman can contribute to the rising costs of modern living and in essence make her a better prospect for marriage. Crabtree (2007) echoes this sentiment as she notes that,

“Families view an education at this level as providing the final polish to a young girl’s life, that marks her out as being successfully poised on the brink of adult life, commensurate with Islamic and cultural expectations of womanhood” (p.577).

Encouragement from the country’s leadership regarding the education of its citizenry coupled with the country’s need to reduce its dependency on foreign labor are also reasons for this increase in female college attendance (Crabtree, 2007; Gallant & Pounder, 2008). Attendance at the nation’s public institutions of higher education is also free for UAE citizens. This too may provide some impetus for increased attendance.

Metcalfe (2007) posits that this increase in attendance has a direct impact on women's increased participation in the labor market.

### **Career Decision-Making**

Today Emirati women can be found in many fields including both public and private sectors. Although this is a monumental achievement, the question remains "How are these women confidently able to make appropriate career choices with limited generational knowledge regarding careers outside the home"? Researchers note that deciding one's career path is one of the most daunting tasks that many college students will encounter on their journey to career success (Alsop, 2009; Gordon, 2007). This task is made even more daunting as "most college students have not been exposed to a range and variety of career options before choosing an academic major or a career direction" (Orndorff & Herr, 1996, p. 633). Many of these students are first-generation college students with limited knowledge of the nature of non-traditional work environments. Add to this the patriarchal society in which these women live, the task of making career decisions confidently may prove to be even more challenging for Emirati females.

The process of career decision-making is one that has been explored for several years. As early as the 1950's, researchers were exploring the factors that contribute to career indecision among college students. These factors include: (a) the opinions and attitudes of family and friends, (b) the inability to accept the role a particular occupation represents although it may be appealing, (c) sex-role stereotyping, (d) being a multit talented individual and unable to narrow down the alternatives, and (e) the inability to accept realistic limitations and obstacles (Tyler, 1953). According to Rowland (2004), high school type is yet another factor that can influence one's confidence in the career decision-making process. Mtemeri (2017) further explores this sentiment and reveals that access to career and academic content varies based on school types. This access to information, or lack thereof, inevitably impacts the career preparation and choices of students enrolled. As there has been a shift from public to private education amongst many Emirati families according to the Dubai Women Establishment (2018), further exploration of this topic is warranted.

When examining the Emirati female's ability to make confident career choices, it is possible that her decision may be influenced by many of the factors listed above. As a society that relies heavily on the family for support, encouragement, and influence, the first factor that references the opinions and attitudes of family and friends is sure to appear. As such, one may confidently deduce that without the support of family,

Emirati women may have low confidence in the career decision-making process.

### **Social Cognitive Career Theory (SCCT) as a Theoretical Framework**

While engaging in this study, it was important to find an appropriate framework from which to understand the experiences and perspectives of this population. As such, the Social Cognitive Career Theory (SCCT) model was chosen. According to researchers Lent et al. (2000),

"SCCT was based on Bandura's social cognitive theory and examines several cognitive-person variables, (e.g., self-efficacy, outcome expectations, and personal goals), and on how these variables interact with other aspects of the person and his or her environment (e.g. gender, ethnicity, social supports, and barriers) to help shape the course of career development" (p. 36).

The model suggests that career development is influenced by objective and perceived environmental factors. Lent et al. (2000) noted quality of educational experiences and financial support as examples of possible objective factors that have the potential to affect one's career development regardless of whether one ascertains their influence. According to Bandura (1977), self-efficacy affects patterns of thought and partly determines one's actions and decisions to engage in a particular task, extend the effort, and persevere. He defined self-efficacy beliefs as expectations concerning one's ability to successfully perform a given behavior. Although Bandura traditionally conceptualized self-efficacy as task specific, further research has been found to support the concept of generalized self-efficacy. Lindley (2005) defines this concept as "the tendency to feel capable of mastering a variety of diverse tasks and activities" (p. 273).

Unlike other models such as Holland's Vocational Personalities and Work Environments and Super's construct of Self-Concept, SCCT encompasses two components that address cultural dynamics. The first addresses early experiences that shape and influence career self-efficacy and outcome expectations. According to Lent et al. (1994), self-efficacy expectations influence choice, performance, and persistence in career-related areas. The second component relates to the continual effects of external contextual factors such as labor market status, racism, sexism, and perceived barriers.

We sought to explore two primary issues. First, to learn about female Emirati career decision self-efficacy in relation to their contemporaries around the world as measured by CDSE. Second, to explore the perceptions of Emirati female students on their career decision-making processes. The results

could provide insight into what is being done or needs to be done in order to help these students succeed in this process. Utilizing a model that allows for the examination of perceived and actual barriers may allow for the development of effective strategies.

### Methodology

Based on Social Cognitive Career Theory and conducted in 2018, the researchers employed the Career Development Self-Efficacy Scale-Short Form (CDSE-SF) in the quantitative strand of this explanatory mixed-method study. The scale was used to examine the perceptions female Emirati students hold about their ability to make career decisions. In the qualitative strand of the study, students from the quantitative phase were recruited via email to participate in a focus group. The intent of the focus group was to gain insight into the reasons why these students held their current perceptions.

### Participants

The participants were female students enrolled in an undergraduate career development course at a medium-size federal university in the UAE ( $n = 214$ ). After removing incomplete surveys, 211 valid surveys remained in the study. The sample was comprised of only Emirati respondents. There were participants between the ages 18-19 (75.3%) and 20-38 (23.2%). Table 1 summarized the sample's demographic variables. Students who attended public school composed 69.1% ( $n = 146$ ) of the sample, while students who attended private schools made-up 30.8% ( $n = 65$ ) of the participants. Out of this number, six decided to participate in the focus group phase of the study.

Table 1 *Demographics: Nationality, Age, and High School Type*

Variable	Category	<i>n</i>	%
Nationality	Emirati	211	100
Age	18-19	159	75.3
	20-21	49	23.2
	22-38	3	1.4
High School	Public	146	69.1
Type	Private	65	30.8

### Quantitative Instruments

Two quantitative instruments were used in the first phase of the study. First, a demographic survey was developed by the researchers to obtain information about the age, educational, and familial characteristics of the participants. The second instrument, the English version of the Career Decision Making Self-Efficacy Scale-Short Form (CDSE-SF), was utilized to measure students' perceptions regarding their career decision-making. The CDSE-SF, developed by Betz and Taylor (2012), is a 25-item questionnaire developed to determine students' perceived career decision-making self-efficacy. The five tasks explored in the CDSE-SF were: (a) accurate self-appraisal, (b) gathering occupational information, (c) goal selection, (d) making plans for the future, and (e) problem solving.

According to Betz and Taylor (2012), the Self-Appraisal scale measures the ability to accurately appraise one's own abilities, interests, and values as they relate to educational and career decisions. Occupational Information gauges the ability to locate sources of information about college majors and occupations. Goal selection estimates the ability to match one's own characteristics to the demands and rewards of careers. Planning is defined as knowing how to implement an educational or career choice, including enrolling in educational programs, job search, resume writing, and job interviewing. The final task of problem solving is defined as being able to figure out alternative plans or coping strategies when plans do not go as intended.

The CDSE-SF uses a 5-point Likert-type scale ranging from 1 (no confidence at all) to 5 (complete confidence). According to Betz et al., (1996), the internal consistency reliability coefficient for the 5-item scale is .94 for the 25-item total score. The content validity of the CDSE-SF has been evidenced by several studies (Miller et al., 2009; Peterson & delMas 1998; Walsh & Betz, 2001). The CDSE-SF was also analysed by an English as a Second Language expert to identify possible words and/or phrases that could be confusing to the participants. Once identified, these words were defined and given to each student on a separate hand-out in both Arabic and English.

### Qualitative Instrument

The study also sought to gain insight into the experiences of participants that may influence perceptions of their career decision-making process. This information would serve to supplement the quantitative results of the CDSE-SF, as well as give rise to the Emirati female voice regarding career decision-making. To assist with the collection of this information, we chose to conduct a focus group. Volunteers were solicited from participants that completed the CDSE-SF. Of the volunteers, four were studying International Relations and

appeared to be friends. The remaining two students were studying Integrated Strategic Communications. Apart from one first-year student, all were second-year students and attended public school before enrolling at the university.

At the beginning of the focus group, a signed consent form was collected from the participants. The researchers also agreed to use pseudonyms to maintain participant confidentiality. A semi-structured interview method was utilized. The researchers developed a 5-question interview protocol to guide the interview. The focus group was scheduled from 45 minutes to 1 hour. A video recording was made per the students' consent and transcriptions were created based on the recording. The transcripts were later analyzed for possible themes. Review of demographic information, member checking, and triangulation were also used to verify recurrent themes. Merriam's (2009) definition of saturation was used to identify repeating themes. Although derived from a limited number of participants, key themes emerged that may provide insight into the career decision-making process of the participants. The discussion of results and emergent themes have been organized around the five questions of the focus group.

**Analysis**

We sought to examine the relationship between career decision-making, age, parental and high school involvement. Independent t test sampling and descriptive statistics were utilized to measure the differences in means between the quantitative variables. No attempts to manipulate the variables were utilized. In this study there was no attempt to assert causation. The statistical significance of the findings was made using a criterion alpha level of .05. An Interpretive analysis approach provided the researchers with a way of exploring the data collected via the focus group. Smith and Osborn (2008) further explain that the focal point of this approach is to try to understand the content and complexity, focusing on the

meanings of the participants' experiences through a deep examination of interview data rather than measuring their frequency.

**Results**

**Career Decision Making Subscale**

In this subscale, we sought to measure the participants' perceptions of their ability to make career decisions. Two hundred and eleven students responded to the CDSE-SF. Respondents' reported confidence in their ability to accurately appraise their own abilities was close to much confidence ( $M = 3.91$ ). Participants had moderate confidence in their ability to find occupational information ( $M = 3.82$ ). The respondents declared that they had moderate confidence in matching their characteristics with career choices ( $M = 3.78$ ). Students reported moderate confidence in knowing how to implement educational and career choices ( $M = 3.85$ ). Being able to make alternative plans when plans do not go as envisioned was the lowest of the mean scores, but students still reported moderate confidence on this task ( $M = 3.59$ ). Overall, the Emirati students were as confident in their career decision-making abilities as their global colleagues noted in Betz and Taylor (2012).

**Research Question # 1, What level of confidence do Emirati females have about their ability to make career decisions?**

The average overall CDSE-SF mean score for participants around the world is 3.80 (Betz & Taylor, 2012). There was no statistically significant difference between the Emirati female students' overall self-efficacy means score (3.79) and other CDSE-SF participants mean scores. Table 2 depicts the descriptive statistics of the 5 CDSE-SF subscales and overall score. Research question #1 findings suggests that Emirati students had a similar level of career decision-making confidence as CDSE participants globally.

Table 2 Descriptive Statistics: Career Decision Making Subscale

		Self- Appraisal	Occupation Info	Goal Selection	Planning	Problem Solving	Overall Score
N	Valid	211	211	211	211	211	211
	Missing	1	1	1	1	1	1
Mean		3.9069	3.8259	3.7866	3.8509	3.5901	3.7927

**Research Question #2, Are there differences in Emirati females in career development self-efficacy (CDSE) based on attending private vs. public high school?**

Independent-sample t-tests were conducted to compare overall career decision-making ability mean scores of public high school graduates and private high school graduates. There were no significant differences in the scores for public ( $M = 3.8042, SD = 0.56$ ) and private ( $M = 3.8049, SD = 0.58$ ) high school graduates;  $t(221) = -.009, p = .993$ . These findings suggest that there were no confidence differences found in Emirati female students based on high school type (see Table 3).

**Research Question #3, Are there differences in Emirati female students' perceptions of CDSE based on family involvement in career decision making?**

An independent-sample t-test was conducted to compare mean scores of students' whose families were involved in their career decision-making process. Respondents attending public schools did have a higher mean score of CDSE than those attending private school. However, the difference was not statistically significant. Those who reported family involvement in their career decision-making process had similar overall self-efficacy scores as those whose families were not involved in their decision-making process. As shown in Tables 4 and 5, there were no significant differences in the scores for the family involvement ( $M = 3.7938, SD = .59097$ ) and the non-family involvement ( $M = 3.8660, SD = .59097$ ) conditions;  $t(189) = -.759, p = .449$ . The third research question findings suggest that family involvement did not influence the students' decision-making.

**Qualitative Results**

**Research Question # 4, How do Emirati females describe their experience with career decision-making in their culture?**

Question 1 of the focus group sought to determine the biggest influence on the participants' abilities to make decisions regarding their career choice. Discussions with family and friends emerged as the foremost theme. Mariam, a second-year student like most of her peers in the focus group, was the first to respond. When speaking of her biggest influence, she revealed "Being with friends, knowing them and being supportive; they encouraged me with my decision which made me feel stronger and more determined". Amal echoed this revelation as she stated that, "For me discussions with family and friends made me look around at all the different areas and majors I want. That was my reason for

International Relations". Although Fatma shook her head in agreement with her peers, she offered a different insight into the biggest influence on her ability to decide on her career choice. She stated,

The classes I took in university. It opened my mind when I entered the university. The global class opened my mind about history, philosophy, and politics. That was my biggest [influence].

To put her comment into perspective, the global class she mentioned is an introductory course taken by all students. The class is typically taken within the first year and exposes students to various cultures around the world. Students gain an in-depth knowledge of social, political, and economic development on a global scale. As an International Relations student, it is likely that taking this course would have been influential in one's decision to pursue this area of study. Along with discussion with family and friends, taking introductory courses may also be influential on students' career choice.

Table 3 Independent t-test: CDSE-SF Overall Score and High School Type

Levene's Test for Equality of Variances				
		t	df	Sig. (2-tailed)
CDSE Total	Equal variances assumed	-.009	221	.993
	Equal variances not assumed	-.009	162.368	.993

Table 4 Descriptive Statistics: CDSE-SF Overall Score and Family Involvement

		Family Involvement	N	Mean	Std. Deviation
CDSE Overall Score	Yes		154	3.7938	.55850
	No		37	3.8660	.59097

Table 5 Independent t Test: CDSE-SF total and Family Involvement

		t	df	Sig. (2-tailed)
CDSE Total	Equal variances assumed	-.759	189	.449
	Equal variances not assumed	-.737	74.685	.463

Question 2 of the focus group inquired about possible obstacles to the students' ability to make decisions regarding their career choice. To our surprise, one of the biggest influences on participants' career decision-making abilities was also one of their biggest obstacles. Several participants agreed that family members were often obstacles to their career decision as they misunderstood or did not agree with their career choices. Pondering the question for a moment, Amal stated "When I first told my family that I wanted International Affairs, they thought I'd be working in mixed environments or at the embassy with boys". Nodding her head in agreement Mariam stated, "For me, it's family also. Because they misunderstand and they have these stereotypes about certain majors. They don't know exactly what it is, and they get very sensitive because I'm a girl". As noted earlier, males traditionally dominated the workforce in this region. Although this dominance has decreased significantly over the years, some families may still hold conservative views regarding the roles of women and the way their daughters are to function in society. Agreeing with these participants, Noof commented that her family's uncertainty regarding her major was an issue to overcome. She reflected:

Their concern was what am I going to do? Are you going to be an Ambassador? So that had me thinking over and over again about the major. But then I think when we explored the major more, we found out that you don't have to be an ambassador or work in the Foreign Affairs or whatever. You can do other things like in tourism and other areas.

Question 3 of the focus group inquired about the sources that aided in increasing the confidence of these students regarding their career choice. Responses were split on this question. Again, it appeared that discussions with friends and taking introductory courses were recurring themes. When responding to this question Noura enthusiastically stated:

My friends really helped me because they know me on a personal level and on an educational level. They're not like my family that just know me personally. They know what I like, what I don't like. The way we discuss the subject after finishing class really helped me to choose what I want.

Although Fatma agreed that discussions with friends were important, she reiterated her perspective regarding the impact of taking an introductory course. Not only was taking the global course the biggest influence on her decision, it also aided in increasing her confidence in her decision. She recaps, "Taking global classes the first year and when I started studying more about the major, I was interested in the topics". Listening intently and somewhat reserved, Reem simply replied "both of them" referring to the responses of her peers when questioned about sources that increased her confidence.

Question 4 of the focus group asked participants to describe their feelings regarding the process of deciding on a career. The overwhelming majority of participants expressed difficulty with the process. Fatma recounted,

It was kinda hard because International Affairs wasn't my first choice. Even wasn't in the back of my mind to take International Affairs at all. I chose IT [Information Technology] and my second option was Art. But then again it all comes to what I took in the first year. Global, loving history, politics, and everything related to them.

Noof added "Even knowing yourself, what I like the most, knowing your abilities. It's all a difficult thing to figure out". Agreeing with her peers, Reem states that simple tasks such as "choosing what you like" proved to be difficult. Mariam also agreed that the process was difficult. However, unlike her peers that mentioned dealing with internal conflict, much of the difficulty she encountered seemed to stem from external factors. She states,

Because sometimes family expectations are...They say you have to have a job but when you present something new to them, they're like is it gonna work? Will you have a career? It's confusing. Even in high school I wanted to be something different.

Question 5 of the focus group asked participants where they saw themselves in the future. Overwhelmingly participants noted their desire to continue their education and join the workforce. When asked about her plans, Noura responded, "Studying and working". Agreeing with her, Reem says "Yeah. Basically studying and working". When contemplating her future, Mariam agreed with her peers but added more depth to response. She states,

Getting more degrees. I think our mindset, especially our generation, is so different from our parents. Because in five years [after graduation], they wanted to have a job that provides. We just want to explore more and more. Have more experiences.

Clearly pondering and supporting Mariam's perspective, Amal added that her generation wanted to be "Creating something new. Changing the world". Adding to this view, Fatma states "It's not all about working. It's about what we know. The knowledge we're getting. It's more like that".

### Summary of Results

The quantitative results indicated that the participants in this study have similar career decision-making confidence levels as compared to CDSE participants globally. Respondents attending public schools did have a higher mean score of self-efficacy than those attending private school. However, the score was not statistically significant. The purpose of utilizing the explanatory mixed-methods design was to allow the

second strand, focus group or qualitative strand of the study, to help explain the surprising findings of the lack of significant findings in the first phase of the study (Creswell & Plano, 2017). Those who reported family involvement in their career decision-making process had similar overall self-efficacy scores as those whose families were not involved in their decision-making process. Although we found no statistically significant data related to family involvement and career decision-making confidence, it's important to note that previous research references the influence of family on one's career decision-making process in Emirati culture (Crabtree, 2007; Dubai Women Establishment, 2018; Hajeri & Vammalle, 2020; Orami, 2011; Schvaneveldt et al., 2005).

Upon analyzing the qualitative results, we identified experiences indicative of significant cultural influence. Experiences with family were found to be a significant influence in the career decision-making process of several participants. In contrast, we also found that experiences with family members tend to serve as obstacles as well. Some participants were questioned by family about the validity of unfamiliar majors such as International Relations and available employment opportunities upon graduation. Participants also made remarks regarding the hesitancy of family members to support the pursuit of majors that led to careers predominately occupied by men. This may in part be due to stereotypes that some may hold regarding women and the roles they play in society (Gallant & Pounder, 2008; Orami, 2011; Soliman, 1986). Themes from the focus group also revealed that engagement with friends and introductory courses helped to increase confidence. Overall students in the focus group felt as if the process of deciding on a career was difficult. However, there was also a desire to be innovative and to do something different than their parents before them.

### **Practical Implications**

The results of the study have important implications for both students and career practitioners. Based on the CDSE scale results, many of the participants have garnered a sense of CDSE that would allow them to make decisions regarding their career. Upon further analysis through facilitation of a focus group, we found that students would benefit from a more purposeful and multi-faceted approach to career decision-making. When possible, career practitioners should involve family members when engaging students in the career exploration process. Jeffery (2018) posits that the choices of unmarried women are directly influenced by parents, while married women are directly influenced by their husbands. She also notes that a woman's willingness to work outside the home is directly related to her role models. As family members yield much influence on the decisions of these students, career practitioners should also work to educate and

demystify stereotypes that families may hold. It is also imperative that practitioners advocate for the development of introductory courses that further engage students in the career decision-making process.

It is suggested that universities work to develop policies and/or initiatives to enhance the career guidance that is provided to the student body. This guidance can come in several forms; including but not limited to adding career preparation information to undergraduate curricula. In their work on the effects of career development courses on CDSE, Reese and Miller (2006) found that career courses based on theory can increase CDSE. Research also notes that there is a positive correlation between confidence in one's career decision-making ability and academic satisfaction (Duffy et al., 2015). As such, it is likely that students may be more apt to finding academic success due to increased CDSE as a result of completing these courses. Universities should also consider engaging students in practical experiences early in their academic career. These experiences not only provide first-hand knowledge and increase students' confidence but could also lessen the burden of deciding amongst the various majors. Pearson and Dellman-Jenkins (1997) noted that the ability to select a realistic major appropriate to career aspirations is one of the most important contributors to student satisfaction, success, and retention. These efforts could be particularly beneficial as universities are researching ways to retain students and are also considering curriculum reviews to enhance students' experiences.

As more Emirati women continue to engage in the workforce in increasing numbers, the need for effective career guidance is paramount. This study found that Emirati women are confident in career decision-making. However, this confidence is based on their ability to access career guidance. The UAE should continue to provide access and resources to young women to continue the development of these women's career decision-making self-efficacy.

### **Scope and Limitations**

The purpose of this explanatory mixed-methods study was to examine the career decision-making behavior of female Emirati students. We chose this method of study to allow the second strand, the qualitative strand of the study, to inform the lack of significant findings in the quantitative or first strand of the study. All strands of data were collected and analyzed in the Fall of 2016 through the Spring 2018 at a government university in the United Arab Emirates (UAE). Although we utilized both quantitative and qualitative instruments in this study, there were some limitations that should be acknowledged:

1. The data for this study was collected before the COVID-19 pandemic. According to Ali (2021), a significant



number of students now prefer working and studying in a remote environment. This shift in attitude may also influence students' career choice as students may choose careers that are more likely to allow this type of work.

2. As female Emiratis in the UAE are more likely to attend a government university due to factors that include free tuition (Dubai Women's Establishment, 2018), participants in the study were limited to those that attend public university. Female Emiratis living and attending university outside of the UAE were not included.
3. The sample size of the qualitative strand was relatively low. It is possible that a larger sample could produce more comprehensive findings.

### References

- Abdalla, I. (1995). Sex, sex-role self-concepts and career decision-making self-efficacy among Arab students. *Social Behavior and Personality*, 23(4), 389-402. doi:10.2224/sbp.1995.23.4.389
- Al Awad, M. (2018). UAE labour market: Development, structure, and characteristics. In *Labour market productivity in the United Arab Emirates: Issues, Policies, & Implications*. Report sponsored by the United Arab Emirates Ministry of Human Resources & Emiratization.
- Al-Darmaki, F. R. (2012). Relationships between career counseling attitudes and self-esteem and self-efficacy among Emirati university students. *Journal of Career Development*, 39(2), 143-161. doi:10.1177/0894845310380046
- Ali, L. (2021). The shift to online education paradigm due to Covid-19: A study of student's behavior in UAE universities environment. *International Journal of Information and Education*, 11(3), 131-136. doi:10.18178/ijiet.2021.11.3.1501
- Alsop, R. (2009). The challenges of managing millennials in the workplace. Retrieved from [http://www.naceweb.org/Publications/Spotlight\\_Online/2009/1014/The\\_Challenges\\_of\\_Managing\\_Millennials\\_in\\_the\\_Workplace.aspx?referral=Knowledgecenter&menuid=322](http://www.naceweb.org/Publications/Spotlight_Online/2009/1014/The_Challenges_of_Managing_Millennials_in_the_Workplace.aspx?referral=Knowledgecenter&menuid=322)
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review*, 84(2), 191-215. doi.org/10.1037/0033-295X.84.2.191
- Beitler, R.M., & Martinez, A. R. (2010). *Women's roles in the Middle East and North Africa*. Santa Barbara, CA: Greenwood Press.
- Betz, N.E., Klein, K.L., & Taylor, K.M. (1996). Evaluation of a short form of the Career Decision-Making Self-Efficacy scale. *Journal of Career Assessment*, 4, 47-57. doi.org/10.1177/106907279600400103
- Betz, N.E., & Taylor, K.M. (2012). *Career decision self-efficacy scale manual and sampler set*. Retrieved from <http://www.mindgarden.com>.
- Crabtree, S. (2007). Culture, gender and the influence of social change amongst Emirati Families in the United Arab Emirates. *Journal of Comparative Family Studies*, 38(4), 575-587. Retrieved from <http://www.jstor.org/stable/41604179>
- Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.
- Dubai Women Establishment (2018). The Power of Choice: Insights into women's employment decisions and societal perspectives in the United Arab Emirates. Retrieved from <https://www.pwc.com/m1/en/blogs/pdf/power-of-choice-report.pdf>
- Duffy, R.D, Douglass, R.P., & Autin, K.L. (2015). Career adaptability and academic satisfaction: Examining work volition and self-efficacy as mediators. *Journal of Vocational Behavior*, 90, 46-54. doi.org/10.1016/j.jvb.2015.07.007
- EdArabia (2021). Population of the UAE. Retrieved from <https://www.edarabia.com/population-uae/>
- Facts and Figures. (n.d.). Ministry of Higher Education and Scientific Research. Retrieved from <https://services.mohesr.gov.ae/mohe/Default.aspx>
- Gaad, E., Arif, M., & Fentley, S. (2006). Systems analysis of educational management. *Bradford*, Vol 20, (4), 291-303. doi: 10.1108/09513540610665405
- Gallant, M., & Pounder, J.S. (2008). The employment of female nationals in the United Arab Emirates (UAE): An analysis of opportunities and barriers. *Education, Business and Society: Contemporary Middle Eastern Issues*, Vol 1, (1), pp.26-33. doi:10.1108/17537980810861493
- Gender Balance Council (2019), *Facts About UAE Women*, viewed 20 Feb 2019, <http://www.gbc.gov.ae/facts.html>

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- Gordon, V. (2007). *The undecided college student: An academic and career advising challenge*, 3d. Portland: Ringgold Inc.
- Hajeri, S.A., & Vammalle, C. (2020). Towards increasing the Emirati women participation in the workforce. UAE Public Policy Forum.
- Harfoush-Strickland, S. (1996). Formal education and training in non-traditional jobs. In Sabbagh, S. (Ed.), *Arab women: Between defiance and restraint*. New York: Olive Branch Press.
- Jeffrey, S. (2018, October 17). "Getting Emirati women into work: Why our study surprised me?" PWC. <https://www.pwc.com/m1/en/blog/getting-emirati-women-into-work-study-surprised-me.html#:~:text=from%20other%20cultures.,Today%2C%20women%20make%20up%20only%2028%25%20of%20the%20total%20Emirati,and%20on%2Dsite%20child%20care>
- Lent, R.W., Brown, S.D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career, academic interest, choice, and performance. *Journal of Vocational Behavior*, 45, 79-122. doi.org/10.1006/jvbe.1994.1027
- Lent, R.W., Brown, S.D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, 47(1), 39-49. doi:10.1037/0022-0167.47.1.36
- Lindley, L. (2005). Perceived barriers to career development in the context of social cognitive career theory. *Journal of Career Assessment*, 13(3), 271-287. doi.org/10.1177/1069072705274953
- Merriam, S. (2009). *Qualitative research: A guide design and implementation*. San Francisco: Jossey-Bass.
- Metcalf, B. (2007). Gender and human resource management in the Middle East. *The International Journal of Human Resource Management*, 18 (1), 54-74. doi:10.1080/09585190601068292
- Miller, M.J., Sendrowitz Roy, K., Brown, S.D., Thomas, J., & McDaniel, C. (2009). A Confirmatory test of the factor structure of the short form of the career decision self-efficacy scale. *Journal of Career Assessment*, 17 (4), 507-519. doi:10.1177/1069072709340665
- Mtemeri, J. (2017). Factors influencing the choice of career pathways among high school students in Midlands Province, Zimbabwe. Doctoral dissertation, University of South Africa.
- Omar, K. (2010). Typology of career development for Arab women managers in the United Arab Emirates. *Career Development International*, 15 (2), 121-143. doi:10.1108/13620431011040932
- Oraimi, S. (2011). The concept of gender in Emirati culture: An analytical study of the role of the state in redefining gender and social roles. *Museum International*, 63 (3-4), 78-92. doi:10.1111/muse.12009
- Orndoff, R. M., & Herr, E.L. (1996). A comparative study of declared and undeclared college students on career uncertainty and involvement in career development activities. *Journal of Counseling & Development*, 74, 632-640. doi.org/10.1002/j.1556-6676.1996.tb02303.x
- Pascarella, E., & Terenzini, P.T. (2005). *How college affects students: Vol.2. A third decade of research*. 2nd ed. San Francisco: Jossey-Bass.
- Pearson, C., & Dellman-Jenkins, M. (1997). Parental influence on a student's selection of a college major. *College Student Journal*, 31 (3), 301-313.
- Pech, R. (2009). Emiratisation: aligning education with future needs in the United Arab Emirates. *Education, Business and Society: Contemporary Middle Eastern Issues*, 1 (2), 57-65. doi.org/10.1108/17537980910938488
- Peterson, S.L., & delMas, R.C. (1998). The component structure of career decision-making self-efficacy for underrepresented college students. *Journal of Career Development*, 24(3), 209-225. doi:10.1177/089484539802400304
- Reese, R.J., & Miller, C.D. (2006). Effects of a university career development course on career decision-making self-efficacy. *Journal of Career Assessment*, 14(2), 252-266. doi:10.1177/1069072705274985
- Rowland, K. (2004). Career decision-making skills of high school students in the Bahamas. *Journal of Career Development*, 31, 1-13. doi.org/10.1177/089484530403100101

## CAREER DECISION-MAKING: EMIRATI FEMALES

- Schvaneveldt, P.L., Kerpelman, J.L., & Schvaneveldt, J.D. (2005). Generational and cultural changes in Family in the United Arab Emirates: A comparison of mothers and daughters. *Journal of Comparative Family Studies*, 36 (1), 77-91. doi:10.318/jcfs.36.1.77
- Sherif, B. (1999). Gender contradictions in families: Official v. practical representations among upper middle-class Muslim Egyptians. *Anthropology Today*, 15, (4), 9-13. doi:10.2307/2678146
- Smith, J. & Osborn, M. (2008). Interpretative phenomenological analysis. In J.A. Smith (ed.) *Qualitative Psychology: A practical guide to methods*, 2nd edition. London: Sage.
- Soliman, A. (1986). The counseling needs of youth in the Arab countries. *International Journal for the Advancement of Counseling*, 9, 61-72. doi.org/10.1007/BF00116435
- Statistics Center for Abu Dhabi. (2019). *Statistical Yearbook of Abu Dhabi 2019*. Abu Dhabi, UAE. Retrieved from [https://www.scad.gov.ae/Release%20Documents/Statistical%20Yearbook%20%20Unemployment\\_2019\\_Annual\\_Yearly\\_en.pdf](https://www.scad.gov.ae/Release%20Documents/Statistical%20Yearbook%20%20Unemployment_2019_Annual_Yearly_en.pdf)
- Tyler, L. (1953). *The works of the counselor*. New York: Appleton-Century-Crofts.
- UN Women (2018). *Facts and Figures: Economic Empowerment*. Retrieved from <https://www.unwomen.org/en/what-we-do/economic-empowerment/facts-and-figures>
- Walsh, W.B. & Betz, N.E. (2001). *Tests and assessment* (4th ed.). Englewood Cliffs, NJ; Prentice Hall.
- Zuhur, S. (2003). Women and empowerment in the Arab world. *Arab Studies Quarterly*, 25(4), 17-38. Retrieved from <https://www.proquest.com/scholarly-journals/women-empowerment-arab-world/docview/220604074/se-2?accountid=15192>

## Development and Validation of the Emporium Model Motivation Scale (EMMS)

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Essential to college success is effective transitions management. Supporting healthy psychological well-being is integral to transitions, particularly for academic remediation efforts. Unfortunately, to date, no known self-report instrument exists that can be used to assess students' psychological well-being in more student-focused self-directed learning settings, such as the Emporium Model (E-Model) design for course instruction. The objective of the current study was to begin the development and validation of the Emporium Model Motivation Scale (EMMS), designed to assess the effectiveness of student-focused learning settings by adopting items from various instruments rooted in Self-Determination Theory (SDT). Data were collected from a random sample  $n = 463$  respondents from a U.S. community college and 4-year public university. Exploratory Factor Analysis (EFA) using oblique methods produced four parsimonious and reliable factors ( $\omega > .85$ ). Using standardized factor score estimates, findings revealed that compared to 4-year college and younger students, community college students and older respondents were more autonomous and receptive to the E-Model design for course instruction and valued the interpersonal interactions with the instructors and tutors.

**Keywords:** Survey Development, Exploratory Factor Analysis, Transitions, Self-Determination Theory Motivation

As students transition to college, they are faced with various challenges that can impact successful transitions, persistence, and motivation to pursue academic aspirations (Grabau, 2011; Karmelita, 2020). A significant barrier to student success is student enrollment in learning support courses (Valentine, Konstantopoulos, & Goldrick-Rab, 2017). Estimates have shown upwards of 60% of students at community colleges need learning support

(Piercey & Aly, 2019). This creates hurdles for higher education institutions seeking to make transitions to college a smooth and rewarding experience. Transition challenges can be mitigated when institutional initiatives include mathematics learning support, given the significance of the “relationship between the cognitive and affective factors” to impact students’ confidence in their abilities to succeed in learning support courses or programs

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(Bonham & Boylan, 2011, p. 4). A growing trend addressing these challenges has been redesigning learning support mathematics courses to be more student-focused by adopting the Emporium Model (E-Model) design for course instruction (Twigg, 2011).

Since the initial development of the National Center for Academic Transformation (NCAT) in 1999, redesign efforts of *learning support mathematics* (LSM) courses or programs (i.e., developmental mathematics) and high enrollment in introductory college-level courses (e.g., College Algebra or English) have grown in popularity to combat the growing concerns of low success and retention rates of students enrolled in these courses (Ashby, Sadera, & McNary, 2011; Bonham & Boylan, 2011; Piercey & Aly, 2019). NCAT was a non-profit organization that provided course redesign resources to create cost-effective actively-engaged learning spaces where a *computer learning system* (CLS – e.g., ALEKS, Hawk’s Learning System, Pearson’s My Math Lab, or Lumen Learning Online Homework Manager) was a centralized component of the learning process. The success of NCAT initiatives brought on a wave of course redesign enthusiasts interested in fostering more student-centered learning that became increasingly popular following the implementation of the program initiative, *Changing the Equation*, from 2009 to 2012 (Twigg, 2013). *Changing the Equation* focused on redesigning LSM courses or programs at community colleges by implementing the E-Model design for course instruction – one of six course redesign models that required replacing lecture-based instruction with student-centered actively-engaged learning experiences through NCAT (Twigg, 2011).

Research suggests that programs using the E-Model design for course instruction are better suited for the more autonomous or self-directed learners than the less autonomous learners (Williams, 2016). However, research suggests that the E-Model can provide opportunities for the less autonomous learners to become more autonomously natured through autonomy-supportive instructional behaviors (Bray & Tangney, 2017). Self-directed learners are goal-oriented, good managers of their time, and use learning

strategies to help them succeed (Cho & Heron, 2015). In addition, they are learners who tend to exhibit high levels of self-regulation of activities and work toward internalizing the value and usefulness of activities to render the desired outcome (Cho & Heron, 2013). The potential problematic issue for learners in the E-Model learning space is the absence of needed autonomy-support of their *basic psychological needs* (BPN). These needs are elements of Self-Determination Theory (SDT), which asserts that all individuals have a natural intrinsic desire to strive for *autonomy, competence, and relatedness* within unique social settings (Ryan & Deci, 2017). When external barriers impede the BPN, one's ability to thrive and grow within these settings is hindered. For students learning in more self-directed or student-focused experiences, receiving the needed autonomy support allows them to become more autonomous, develop confidence in their abilities, and feel a sense of belonging to the social experience. To this end, great insights can be obtained by examining the psychological well-being of students, given the significance of correlations found between psychological traits, student performance, and mathematics achievement (Cho & Heron, 2015; Kargar, Tarmizi, & Bayat, 2010; Skaalvik, Federizi, & Klassen, 2015). When E-Model environments are autonomy-supportive of students' BPN, the experience maximizes students' potential to strive and grow on their journey toward acclimating to the college experience and achieving their goals and aspirations.

### The E-Model

**Essential components.** The success of the E-Model depends on the implementation of 10 essential elements displayed in Table 1. These fundamental elements consist of the Core Structural Elements, which form the foundational aspects of the E-Model across instructional designs, and the Strategic Operational Elements, which are based on interactions within the learning space implemented uniquely across instructional designs. However, the components support active-student engagement to maximize discourse between support staff and students. Additionally, some E-Models are designed to include a one-hour face-to-face meeting in a classroom once a week to reinforce concepts for

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review or to meet and discuss progress and any other concerns students have. For the most part, course delivery is in a computer learning lab where students use a CLS to complete their individualized mathematics curriculum (Twigg, 2011). Notably, merely developing a computer lab or computer classroom and incorporating a CLS does not constitute an E-Model course redesign; an E-Model redesign depends on intertwining all essential elements (Twigg, 2011). Additional information can be found at <https://www.thencat.org/Guides/Math/TOC.html>.

free and self-directed), competence (i.e., the need to feel capable of performing), and relatedness (i.e., the need to feel a sense of connection or belonging), which are elements that encompass the BPN to excel and become more fully-functioning within unique social settings. Ryan and Deci (2017) identified a continuum of motivation that ranges from amotivation (i.e., lacking the motivation to act) to intrinsic motivation (i.e., one who experiences enjoyment of an action). Within these extremes are four types of extrinsic motivation (i.e., the continuum of

*Table 1 The 10 Essential Elements of the E-Model Design*

Core Structural Elements	Strategic Operational Elements
<ul style="list-style-type: none"> <li>• Redesign whole course learning environments.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure active student engagement.</li> </ul>
<ul style="list-style-type: none"> <li>• Modularize the course content.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide ongoing assessment with computerized feedback.</li> </ul>
<ul style="list-style-type: none"> <li>• Require mastery learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide one-on-one access to trained professionals.</li> </ul>
<ul style="list-style-type: none"> <li>• Measure learning outcomes, completion rates, and cost-efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure the availability of adequate time on tasks.</li> </ul>
<ul style="list-style-type: none"> <li>• Computerize all learning environments using a CLS.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor student success and provide needed assistance.</li> </ul>

### Theoretical Framework

The assessment of students' learning experiences in the E-Model environment encompasses four needs. These are 1) autonomous learning needs, 2) educational technology appreciation, 3) instructor-relatedness, and 4) utilizing metacognitive self-regulated learning strategies (MC-SRLS). These motivational traits form the theoretical framework to assess the effectiveness of the E-Model methodology in being autonomy-supportive of students' BPN.

***Autonomous learning needs.*** Several underlining theories provide a framework for the development of the EMMS. The current study's overarching theoretical framework is Self-Determination Theory (SDT; Ryan & Deci, 2017). SDT asserts that all individuals have an innate desire to strive for a sense of autonomy (i.e., the need to feel

relative autonomy). Of these, external and introjected regulations have an external locus of control. They are lower quality autonomous motivations, while identified and integrated regulations have an internal locus of control and are higher quality autonomous motivations (Ryan & Deci, 2017). These higher-quality autonomous regulators are contributing factors to the EMMS.

In theory, self-determined students should thrive in autonomy-supportive learning spaces (Reeve & Cheon, 2021). Throughout a course or program, students whose learning was impacted by external factors could potentially regulate learning through the progression of internalization and come to value the importance of or ultimately enjoy a subject that they once thought was difficult to excel in due to these influential external factors. On the other hand, when the environment is not autonomy-supportive, it can cause "need

frustration” and negatively influence students’ motivation, which could cause them to digress toward relying on external means to progress through the course or program or hinder students’ ability to thrive in the learning space or worse, become amotivated (Bray & Tangney, 2017; Ryan & Deci, 2017). This viewpoint centers around the effectiveness of the E-Model design to be autonomy-supportive of students’ BPN and contribute to successful college transitional experiences that include both academic and student support services to minimize barriers to student success and retention (Karmelita, 2020).

**Educational technology appreciation.** Central to the E-Model learning experience is educational technology or the CLS (Twigg, 2011). These interactive software technologies are designed to supplement or deliver the instructional curriculum. When implemented effectively, educational technologies, particularly in mathematical educational settings, can add value to the learning experience in the form of “efficiency tools” by supporting the “speed and accuracy of computations” while enhancing students’ mathematics learning (Bray & Tangney, 2017, p. 257). Despite this claim, evidence suggests its effectiveness falls short (Oates, 2011; Selwyn, 2011; Wright, 2010). Other researchers have found that, for some students, computer-assisted learning can harm students learning potential, particularly for students who have preconceived negative perceptions about their abilities to perform, which can ultimately affect their motivation to succeed (Kargar et al., 2010). Nevertheless, the selection, design, and delivery of subject matter content using educational technologies should enhance but not hinder students’ learning experiences. Students’ perceived use or value of educational technologies can provide insight into the effectiveness of these technologies in supporting students’ learning experiences in the E-Model.

**Instructor-relatedness.** Relatedness is fundamental to interpersonal interactions within social contexts, such as educational settings that encompass one's need for “contact, support, and community” (Ryan & Powelson, 1991, p. 6). Within more self-directed learning spaces, instructor-relatedness plays an essential role in providing needed support to overcome psychological barriers and achieve success academically and beyond. Elements of autonomy-supportive instructional behaviors (e.g., listening to students, encouraging students’ efforts, and supporting their abilities) in contrast to controlling forms of instructional behaviors

(e.g., making demands or using controlling language such as have to) were found to be positively correlated with student learning outcomes (Jang, Reeve, & Deci, 2010; Reeve & Jang, 2006) as well as impacted student engagement (Reeve, 2012). More specifically, needed autonomy support can be delivered in two forms (i.e., emotional or instrumental support; Federici & Skaalvik, 2014). Emotional support can come in several forms that reflect emotion (e.g., caring or empathizing, gaining trust, or showing respect expressed through communication; Patrick, Kaplan, & Ryan, 2011), while instrumental support is related to forms of instruction (e.g., explaining a mathematical concept, modeling a problem, providing guidance or inquiry; Federici & Skaalvik, 2014) or assistance with the CLS given its central significance to the E-Model design. Therefore, success within more self-directed learning spaces depends on students’ connection to the instructor or support personnel in autonomy-supportive learning settings to allow students to build mathematical confidence and motivation to learn (Bray & Tangney, 2017; Williams, 2016).

**Metacognitive self-regulated learning strategies.** According to Gagne, Ryan, and Bargmann (2003), educational settings that supported students’ BPN mediated the relationship between autonomy-supportive environments and positive outcomes. Incorporating metacognitive self-regulated learning strategies (MC-SRLS) into the implementation process increases autonomy. Metacognition is a process of monitoring one’s cognition (Rhodes, 2019). When combined with SRLS, the process represents gaining ownership of one’s learning through regulation. According to Pintrich, Smith, Garcia, and McKeachie (1991), MC-SRLS consists of three processes: planning, monitoring, and regulating. Each process specifies an activity that students engage in as part of the learning process. In general, planning involves choosing appropriate strategies (e.g., setting goals or selecting a specific strategy for the task) and allotting resources (e.g., managing time on tasks or seeking help from support personnel) that influence learning outcomes (Schraw, 1998). Monitoring involves specific tasks that help students assess their understanding of the material. For example, engaging in self-inquiry or self-quizzing of course content is a form of monitoring. Finally, regulating involves evaluating the effectiveness of one’s ability to take control over their learning and reflecting on whether the chosen strategies are practical (Schraw, 1998). In other words, regulating is an

ongoing process of “appraising the products and efficiency of one’s learning” (Schraw, 1998, p. 115).

### Purpose of the Study

The current study aims to complete a construct validity assessment of a newly developed instrument designed to measure students’ perceptions of the effectiveness of the E-Model approach in supporting students’ BPN. To date, no known publicly available validated survey instrument exists. Therefore, development and validation procedures seek to identify latent factors and examine interactions between derived latent constructs and demographic variables to underscore the impact of learning in more student-focused settings designed for the more autonomous or self-directed learners.

### Research Questions

1. Do items of the EMMS produce parsimonious factor solutions (*RQ1*)?
2. Do derived factors of the EMMS satisfy internal consistency reliability with  $\omega \geq .70$  (*RQ2*)?
3. Do type of college and age predict the EMMS factors (*RQ3*)?

## Method

### Participants

Respondents were from a Midwestern community college (COLLA;  $n = 241$ ) and a Southeastern 4-year public university (COLLB;  $n = 222$ ). The combined population of students from both institutions enrolled in a learning support mathematics course or introductory college-level mathematics course utilizing the E-Model design for course instruction was  $N = 15,000$ . We used the CheckMarket (n.d.) online sample size calculator for survey research to determine the sample for this population. The recommended sample size for a population of 15,000 at a 95% confidence level and 0.05 margin of error is 375. Therefore, the survey instrument was distributed to a random sampling frame of the target population at each institution (i.e., COLLA;  $n = 3,211$  and COLLB;  $n = 2,752$ ) for a total ( $n = 5,963$ ). A combined response rate of approximately 8.4% ( $n = 500$ ) was received. Of this random sample, 37 incomplete cases were removed from the dataset since more than 20% of their survey responses were missing. The remaining sample ( $n = 463$ ) was used to prepare the data for analysis. Table 2 is a display of

the demographic information. A majority of participants were in the age range 18 – 24 (67%), White (63%), female (75%), and those who completed their course work in one semester (64%). Additionally, there were an approximately equal number of Black (12%), and Hispanic (13%) respondents, approximately 5% were Asian, and another 4% of respondents identified as Other (e.g., biracial [Black/White, White/Asian, Black/Indian, and Arab/mixed raced]).

### Measures

The four essential components that support self-directed learning are autonomous learning needs (AUTOLE), educational technology appreciation (EDTECH), instructor-relatedness (RELATE), and learning strategies (LEARNS). These constructs measured students’ perceptions of learning effectiveness within the E-Model environment. The following discusses the origin of the EMMS items and includes psychometrics, sample items, and the response scale used to measure constructs.

**The learning support mathematics program perception instrument (LSMPPI).** The 37-item instrument was used as part of an evaluation project of an LSM program with three subscales: The Technology Assessment Scale with 10 items and two factors, the Learning Environment Assessment Scale with 15 items and three factors, and the Motivation Assessment Scale with 12 items and three factors. The instrument produced eight parsimonious factors, all with adequate internal consistency reliability of at least 0.73. More

Table 2 Demographic Information

Demographics	(n)	(%)
<b>Gender</b>		
Female	349	75.4
Male	103	22.2
<b>Age</b>		
18 – 24	309	66.7
25 – 31	59	12.7
32 – 38	34	7.3
39 – 45	23	5
46 – 52	23	5
53 or over	11	2.4
<b>Ethnicity</b>		
Non-White	158	34.1
White	290	62.6
<b>College</b>		
COLLA	241	52.1
COLLB	222	47.9
<b>Semester</b>		
1 Semester	296	63.9
2+ Semesters	139	30.0

Note. n=Sample size, %=Percentage, COLLA=Community College, COLLB=University,  $n = 463$ .



specifically, the 7-item factor measuring higher quality autonomous motivation (e.g., “The E-Model environment helped me gain a greater appreciation for mathematics.”) had satisfactory internal consistency reliability ( $\omega = 0.92$ ) for Motivation Assessment Scale, in which all 12 items were adopted for the current study. The subscale's detailed psychometric properties can be found in Gibson, Morrow, and Rocconi (2020). The items were measured on a 7-point Likert type scale ranging from 1=Strongly disagree to 4=Neither agree nor disagree to 7=Strongly agree.

***The intrinsic motivation inventory (IMI; CSDT, 2022).***

The IMI is a 45-item instrument with seven subscales designed to assess respondents' motivation to engage in an activity: interest/enjoyment, perceived competence, value/usefulness, effort, felt pressure and tension, perceived choice, and relatedness. The internal structure of the IMI was assessed and deemed valid using Confirmatory Factor Analysis with adequate Cronbach alpha coefficients, reported to be approximately 0.79 (McAuley, Duncan, & Tammen, 1989). All nine of the value/usefulness items were adopted and edited to be domain-specific in the current study to assess the extent to which respondents value educational technology (e.g., “I think that using a CLS would improve my study habits.”). In a recent study, the 9-item factor measured higher quality autonomous motivation (i.e., identified, integrated, or intrinsic) than lower quality (i.e., external or introjected). In addition, it produced satisfactory internal consistency reliability,  $\alpha = 0.92$  (Schutte et al., 2017). The items were measured on a 7-point Likert type scale ranging from 1=Not at all true to 4=Somewhat true to 7=Extremely true.

***The basic psychological need satisfaction scale (BPNS; CSDT, 2022).*** The 21-item scale had been shown to have adequate internal structure and internal consistency reliability for each of the three subscales (Deci et al., 2001). Deci et al. (2001) reported satisfactory reliability values of the constructs: autonomy (7-items;  $\alpha = 0.79$ ), competence (6-items;  $\alpha = 0.73$ ), and relatedness (8-items;  $\alpha = 0.74$ ). The internal structure and consistency of the factors were supported in a recent study with similar Cronbach's alpha coefficients ( $\alpha > 0.70$ ; Sevari, 2017). Only four of the six competence items could be adopted for a more student-centered type learning environment (e.g., “I often did not feel very competent learning mathematics in the E-Model environment.”). In the current study, the items were measured on a 7-point Likert type scale ranging from 1=Strongly

disagree to 4=Neither agree nor disagree to 7=Strongly agree. On the other hand, all eight relatedness items were adopted and edited to be domain-specific (e.g., “I liked the instructor/tutor I came in contact with, in the E-Model environment.”). These items were measured on a 7-point Likert type scale ranging from 1=Not at all true to 4=Somewhat true to 7=Very true.

***The motivated strategies for learning questionnaire (MSLQ; Pintrich et al., 1991).*** The 81-item instrument is designed to measure college students' motivation (five factors) and the use of different “self-regulated learning strategies” (nine factors). The motivation subscale factors consist of 31 items with Cronbach's alpha coefficients ranging from 0.62 to 0.93. The different self-regulated learning strategies factors comprised 50 items with Cronbach's alpha coefficients ranging from 0.52 to 0.80. The MC-SRLS subscale consists of twelve items. Eight were adopted and revised to be domain-specific (e.g., “When studying in the E-Model environment, I tried to determine which concepts I didn't understand well.”). The MC-SRLS was found to have adequate reliability in a recent study,  $\alpha = 0.79$  of high school students in Singapore (Chow & Chapman, 2017). The items were measured on a 7-point Likert type scale ranging from 1=Not at all true to 4=Somewhat true to 7=Very true.

***The adoption of newly developed items.*** The development of new items pertained specifically to outcomes experienced by students learning in the E-Model environment. The development of these items is discussed in the following section. After a review of the initial 20 items, eight were adopted for the current study (e.g., “I felt a greater sense of control over how I was learning mathematics in the E-Model environment.” or “I had a satisfying experience learning mathematics in the E-Model environment.”). The items were designed to measure higher quality autonomous motivation than lower quality, as defined by Ryan and Deci (2017). The items were measured on a 7-point Likert type scale ranging from 1=Strongly disagree to 4=Somewhat agree to 7=Strongly agree.

***Academic Motivation Scale (AMS; Vallerand, Pelletier, & Blais, 1992).*** The 28-item 7-factor scale was based on the principles of Self-Determination Theory (SDT; Ryan & Deci, 2017). The AMS measured intrinsic motivation (to know, accomplish things, and experience stimulation), extrinsic motivation (external, introjected, and identified

regulation), and amotivation. The internal structure was established using Confirmatory Factor Analysis with adequate mean alpha reliability = 0.81 and mean test-retest correlation = 0.79. Identified regulation was one of the four levels of motivation on the continuum of extrinsic motivation that measured low to high-quality autonomous motivation (Ryan & Deci, 2017). The identified regulation subscale of the AMS was used to assess convergent validity to reduce the effects of survey fatigue. The items maintained originality and were used to assess academic motivation. Respondents were asked: *Why do you go to college?* A response to the question consisted of four items (e.g., “*Because I think college will help me better prepare for the career I have chosen.*”). The items were measured on a 7-point Likert type scale ranging from 1=*Corresponds not at all* to 4=*Corresponds moderately* to 7=*Corresponds exactly*.

## Procedure

**Item development.** The process of item development was carried out in three stages. The first stage focused on a review of pertinent literature related to the constructs to be measured: a review of research on redesigning LSM courses and programs. The second stage focused on developing and adopting 20 potential new items using survey research and design techniques (Colton & Covert, 2007), including adopting and revising 36 items from the four instruments previously discussed. Finally, the third stage assessed face and content validity through instrument testing and expert review.

Following the literature review, a professor of social psychology with research experience and knowledge of motivation theory assessed the content validity of the 20 newly developed items. Procedures included an assessment of word choice, simplicity of the language used, and checking for double-barreled items. Based on the feedback received, eight of the 20 items were adopted and combined with the 36 items adopted from other instruments for 44 initial items of the EMMS. Additionally, a review of all 44 items was performed by a sample of 18 students enrolled in an LSM course to assess item face and content validity. These students shared similar characteristics as the participants of the target population. Students received the items electronically and were asked to provide feedback regarding the readability, terminology used, and clarity of sentence structure. Upon review, items were revised to reflect the feedback received.

**Recruitment and data collection.** Recruitment of respondents began with an initial letter to representatives of participating postsecondary institutions. These institutions were identified through NCAT resources and had participated in a course or program redesign initiative using the E-Model methodology. Following IRB approval, the data collection process began. A request to collect data was sent to each institution for a representative random sample of the target population. An anonymous link to the survey was created within the Qualtrics survey software and distributed to the target population of participants. Notably, the random sample consisted of students who had enrolled in an E-Model course from fall 2016 through spring 2018, regardless of whether students completed or attempted completion of the course or program. The specified period was chosen to reduce the effects of history and maturation to increase the likelihood of more accurate responses from respondents. In addition, participants were entered into a raffle to win one of several Amazon gift cards.

**Research Design.** The current study is a nonexperimental research design. Correlational, survey and multivariate methods are used to analyze data and address the three overarching research questions. Before these analyses were performed, preliminary descriptive analyses and visual plots of variables were inspected for possible issues (e.g., missing data, outliers, normality, coding issues, and spelling errors). No more than 5% of data were missing, and outliers were recoded to be within  $|\pm 3|$  standard deviations of the mean for analyses following EFA (see Tabachnick & Fidell, 2019). Analyses were carried out in two stages. The initial stage investigated the internal structure of the EMMS and the internal consistency reliability of derived factors. FACTOR was used to perform EFA (Ferrando & Lorenzo-Seva, 2017) to analyze the polychoric correlation matrix. Unweighted Least Squares (ULS) extraction and Promax rotation methods were recommended for ordinal data and correlated factors (Gaskin & Happell, 2014). Since no one method is flawless (Osborne, 2014), multiple methods were used to determine the number of factors to retain (i.e., Kaiser’s eigenvalue > 1 criterion, Velicer’s MAP, Horn’s PA, and BIC dimensionality test). Ordinal omega coefficients with acceptable values ( $\omega \geq 0.70$ ) were computed in R using the MBESS package to assess the internal consistency reliability (Dun, Baguley, & Brunnsden, 2014).

Since factor score estimates are indeterminate (i.e., having infinite solutions; DiStefano, Zhu, & Mindrila, 2009), we computed several factor score estimate indices (i.e., the *factor determinacy index* [FDI] and *marginal reliabilities* [MR]; Ferrando & Lorenzo-Seva, 2018). An FDI index > 0.90 and MR > 0.80 were considered acceptable indices to ensure estimates were an accurate representation of participants’ “true” score responses (Ferrando & Lorenzo-Seva, 2018). Additionally, *generalized H (G-H)* Latent and Observed indices were computed to assess the generalizability and replicability of the factor structure, which assesses how well a factor is defined by its common items with an established acceptable threshold > 0.80 for all factors (Ferrando & Lorenzo-Seva, 2018).

The second stage involved correlational and multiple regression analyses. Correlational analysis was performed to assess convergent validity between the EMMS factors and the identified regulation subscale of the AMS to provide evidence of higher-order autonomous motivation. Convergent validity was to be evidenced with statistically significant inter-correlations defined by Cohen’s effect size values for product-moment correlations (i.e.,  $r = .10$  [small],  $.30$  [medium], and  $.50$  [large]; Cohen, 1992). In contrast, multiple regression analyses regressed the EMMS factors onto college and age predictor variables.<sup>1</sup> Diagnostic analyses assessed the adequacy of our multiple regression models (i.e., normality, linearity, outliers, multicollinearity, homoscedasticity, and independence of residuals; Ott & Longnecker, 2016). Additionally, with at most 3.3% of cases or variables with missing data, multiple imputations in FACTOR were used.

**Results**

**Latent constructs and reliability of EMMS factors**

A review of the Legacy Dialog plots suggested a slight violation of multivariate normality with reasonable linearity. Mardia’s asymmetric test showed a significant kurtosis  $p < .0001$ , whereas skewness was not,  $p = 1$  at a 0.05 level of significance. The test provided evidence to use Polychoric correlations, given ordinal data will most likely be

asymmetric (Gaskin & Happell, 2014). Bartlett’s test of sphericity  $\chi^2(496)=14,488.7$ ,  $p = .0001$  and the KMO test value = 0.97 (marvelous; Pett, Lackey, & Sullivan, 2003, p. 78) supported factorability. A precise 95% CI of the Biased-Corrected (BC) bootstrap of the KMO = [0.97, 0.97] suggested the potential factorability across other samples or populations for robust analysis. After several iterations, 12 variables were removed from the analysis, consisting of cross-loadings, violation of multicollinearity (> 0.90; Tabachnick & Fidell, 2019), and variable removal to improve communality to 0.54. The remaining 32 items formed a parsimonious four-factor solution of the EMMS. Notably, Table 3 displays the bivariate correlations between the EMMS factors and the identified regulation subscale of the AMS. Only instructor-relatedness produced a positive, statistically significant correlation with the identified regulation subscale of the AMS ( $r = 0.11$ ,  $p = 0.014$  with a small effect size based on Cohen’s criterion for the product-moment correlation.

Table 3 *Bivariate Correlations Between EMMS Factors and Identified Regulation*

	AUTOLE	EDTECH	RELATE	LEARNS	AMS
AUTOLE	1				
EDTECH	0.79**	1			
RELATE	0.66*	0.57**	1		
LEARNS	0.53**	0.55**	0.53*	1	
AMS	0.09	0.08	0.11*	0.08	1

*Note.* AUTOLE=Autonomous Learning Needs, EDTECH=Educational Technology Appreciation, RELATE= Instructor-Relatedness, LEARNS= Learning Strategies, AMS= Academic Motivation Scale, \* $p < .05$ , \*\*  $p < .01$ ,  $n = 463$ .

**RQ1 and RQ2.** The retention of a four-factor solution was hypothesized *a priori*, given that many items were derived from other validated and reliable survey instruments. As discussed previously, several methods for retaining factors were reviewed. The modern methods: BIC, MAP, and PA, suggested the retention of three factors, whereas Kaiser’s eigenvalue > 1 rule suggested the retention of four factors. Table 4 lists the eigenvalues and percentage of variance extracted per factor. Validity and reliability evidence and the *G-H* Latent and Observed indices produced acceptable values supporting a 4-factor solution. The *G-H* Latent

<sup>1</sup> Preliminary analyses were investigated to discern any meaningful differences between demographics provided in Table 2 regarding EMMS factors as dependent variables (DV). Correlations between DVs and semester ranged from  $r = -0.04$  to  $0.07$ , rendering the variable meaningless to consider in any future analysis (Tabachnick & Fidell, 2019). Only college and age produced significant differences following MANOVA. Similarly, multiple regression analysis on all other demographics produced the same outcome: college and age as predictors.

values ranged from 0.92 – 0.98, and the Observed values ranged from 0.85 – 0.98.

Table 4 *Extracted Eigenvalues and Explained % of Variance*

Factors	Eigenvalues <sup>a</sup>	Variance %	Cumulative Variance %
AUTOLE	19.94	62.31	62.31
EDTECH	2.49	7.79	70.10
RELATE	1.63	5.08	75.18
LEARNS	1.18	3.68	78.85

Note. <sup>a</sup>Polychoric correlations using ULS with Promax rotation in FACTOR.

**Autonomous learning needs (AUTOLE).** The first factor consisted of a 17-item subscale that accounted for approximately 62.3% of the variance with high reliability ( $\omega = 0.98$ , 95% CI [0.97, 0.98]). These items assessed whether the learning environment was autonomy-supportive of students' learning needs. Factor score estimates ranged from 0.912 to 0.540 with respective sample items (*"The E-Model environment helped me increase my confidence in my abilities to do mathematics."* and *"I had a satisfying experience learning mathematics in an E-Model environment."*)

**Instructor-relatedness (RELATE).** The second factor consisted of a 4-item subscale that accounted for approximately 7.9% of the variance and high omega ( $\omega = 0.91$ , 95% CI [0.90, 0.92]). These items assessed the extent to which respondents agreed with the relatability of the instructor/tutor in the learning environment. Factor score estimates ranged from 0.957 to 0.784 with respective sample items (*"I liked the instructor/tutor I came in contact with, in the E-Model environment."* and *"The instructor/tutor in the E-Model environment cared about me."*).

**Educational technology appreciation (EDTECH).** The third factor, composed of a 6-item subscale, accounted for approximately 5.1% of the variance with a highly reliable omega ( $\omega = 0.96$ , 95% CI [0.96, 0.97]). These items assessed the extent to which respondents valued using a CLS. Factor score estimates ranged from 0.866 to 0.724 with respective sample items (*"I think that using a CLS would improve my study habits."* and *"I think that using a CLS is important for my improvement in learning mathematics."*).

**Learning Strategies (LEARNS).** The final factor consisted of a 5-item subscale accounting for the least amount

of variance (3.7%) with an adequate omega ( $\omega = 0.89$ , 95% CI [0.88, 0.91]). Items assessed the extent to which respondents used LEARNS during their learning experiences. Factor score estimates ranged from 0.903 to 0.629 with respective sample items (*"I tried to change my approach to learning the concepts when they were difficult to understand."* and *"When studying in the E-Model environment, I tried to set goals for myself in order to direct my activities."*).

**Accuracy and reliability of factor score estimates.** The factor score estimates computed in FACTOR were deemed accurate and reliable. The FDIs for all factors were  $> 0.90$  and ranged from 0.99 – 0.95. Reliability of the factors to be a true estimate of the population score produced MR values  $> 0.80$ ; values ranged from 0.98 – 0.92.

**RQ3.** Demographic variables were recoded to specify a reference variable and indicator variable – such that, the public university and the youngest age group (18 – 24) were the reference variables. The first multiple regression analysis determined the effects on AUTOLE by type of college and age. The overall multiple regression analysis indicated that autonomous learning needs were impacted by college and age,  $F(6, 456) = 4.07$ ,  $p < 0.0005$ ,  $R^2 = 0.05$ , and Adj.  $R^2 = 0.04$ . Both college and age accounted for 4% of the variation in AUTOLE. Respondents from the community college had a statistically significant positive impact ( $\beta = 0.13$ ,  $sr^2 = 0.11$ ). Regarding age, respondents from ages 46 – 52 had significantly higher AUTOLE scores than those in the reference group (18 – 24),  $\beta = 0.12$ ,  $sr^2 = 0.11$ .

The second multiple regression analysis determined the effects on EDTECH by type of college and age. The overall multiple regression analysis indicated that EDTECH was also impacted by college and age,  $F(6, 456) = 4.45$ ,  $p < 0.0002$ ,  $R^2 = 0.06$ , and Adj.  $R^2 = 0.04$ . Both college and age accounted for 4% of the variation in EDTECH. Respondents from the community college significantly positively impacted EDTECH ( $\beta = 0.11$ ,  $sr^2 = 0.09$ ). Consistent with the previous result regarding age, respondents ages 46 – 52 significantly impacted EDTECH ( $\beta = 0.13$ ,  $sr^2 = 0.12$ ) when compared with the reference group (18 – 24).

The third multiple regression analysis determined the effects on RELATE by these variables. The overall multiple

regression analysis showed that RELATE was also impacted by college and age,  $F(6, 456) = 9.8, p < 0.0000, R^2 = 0.11$ , and Adj.  $R^2 = 0.10$ . Both college and age accounted for 10% of the variation in RELATE. The unique contribution by college was positive and statistically significant ( $\beta = 0.29, sr_i^2 = 0.23$ ). In other words, the interpersonal connections between students and the instructors or tutors were positively impacted by respondents from the community college. Regarding age, respondents from the same age group 46 – 52 scored higher on RELATE than the 18 – 24 group ( $\beta = 0.13, sr_i^2 = 0.12$ ).

The final multiple regression analysis determined the effects on LEARNS by college and age. The overall multiple regression analysis showed that LEARNS was impacted by college and age.  $F(6, 456) = 4.22, p < 0.0004, R^2 = 0.05$  and Adj.  $R^2 = 0.04$ . Both college and age accounted for 4% of the variation in LEARNS. Community college respondents scored higher on metacognitive self-regulated learning strategies ( $\beta = 0.19, sr_i^2 = 0.15$ ) than respondents from the four-year public university. In contrast, respondents 53 + scored higher than those 18 – 24 on the same construct ( $\beta = 0.10, sr_i^2 = 0.10$ ).

### Discussion

The study's purpose was to develop and begin the validation process of a survey instrument designed to assess the extent of the E-Model to be autonomy-supportive of students' BPN. Investigations included the internal structure and reliability of the initial 44 items of the EMMS. In addition, interactions were examined between the EMMS and specific demographic variables (college and age). Furthermore, RQ1 examined the uniqueness of the items of the EMMS to produce parsimonious constructs. EFA analysis produced four parsimonious latent subscales: autonomous learning needs (17 items), instructor-relatedness (4 items), educational technology appreciation (5 items), and metacognitive self-regulated learning strategies (6 items). RQ2 assessed internal consistency reliability and produced highly reliable omega coefficients where all  $\omega \geq 0.89$ . Additionally, the accuracy and reliability of factor score estimates exceeded the recommended minimum, with factor determinacy indices ranging from 0.98 – 0.99 and marginal reliabilities ranging from 0.92 – 0.98 for each factor. Finally, an assessment of the potential for generalizability produced satisfactory G-H indices (i.e., a measure of how well factors

were defined by respective common items), which exceeded the minimum (i.e.,  $> 0.80$ ) with indices of at least 0.85 for both the *G-H* Observed and Latent variables (Ferrando & Lorenzo-Seva, 2018).

Pearson's *r* bivariate correlations between the EMMS factors and the identified regulation subscale of the AMS (Table 3) showed only a positive, statistically significant correlation between instructor-relatedness and identified regulation subscale ( $r = 0.11$ ), which is a small effect (Cohen, 1992). Results were not the desired outcome; however, they are debatable. The factors of the EMMS had medium to high positive statistically significant inter-bivariate correlations. Theoretically, the domain-specific items of the EDTECH subscale were found to be representative of identified regulation with a locus of causality that was somewhat internal with a regulatory process defined as conscious valuing or was a measure of personal importance (Legault, 2017; Ryan & Deci, 2017; Schutte et al., 2017).

Furthermore, the items of the identified subscale of the AMS were not altered to be domain-specific (i.e., specific to students assessing enrollment in the E-Model course rather than why they go to college), which could have weakened the relationship between the EMMS factors and the identified regulation subscale – thereby, highlighting discriminate validity between the EMMS factors and the identified regulation subscale of the AMS. However, any meaningful interpretation between instructor-relatedness within the E-Model and the reasons students go to college could have suggested that the “conscious valuing” respondents placed on the reasons why they go to college expressed higher levels of autonomy (concerning identified regulation) than the “conscious valuing” respondents placed on their learning experiences in the E-Model environment. Clearly, the identified regulation subscale of the AMS was not the best measure to assess convergent validity.

RQ3 examined how the EMMS measures were uniquely explained by the type of college and the age of participants. When controlling for age, findings suggest phenomena at the community college impacted all EMMS measures. Most notable, students at the community college valued the importance of interpersonal interactions with the instructor/tutor more than students at the public university. A reason for this outcome could be due to class size. Typically, community college class sizes are smaller and allow these interpersonal relationships to develop more where students

are more likely to receive personalized attention (Chen, 2019). Another reason could be implementing the strategic operational elements at the respective institutions discussed previously.

Similarly, when controlling for college, findings suggest that older respondents (i.e., those aged 46+) reported greater autonomous learning needs, more educational technology appreciation, expressed higher importance of the interpersonal connections with the instructor and reported utilizing more metacognitive self-regulated learning strategies compared with traditional-aged students 18 – 24. Research offers a possible reason for these findings. Naturally, students between 18 – 24 will be less autonomous at the beginning of their college experiences. Research suggests that students become more autonomous during their first four years of college (Wachs & Cooper, 2002). Other research indicates that students will become more autonomous when they separate from reliance on their parents and assume more adult-related responsibilities (Cullaty, 2011). Although statistically significant, effect sizes were small (i.e.,  $f^2$  ranging from 0.05 to 0.12; Cohen, 1992).

### Limitations

While no research is without its limitations, there are several limitations, in particular, worth mentioning. First, data were collected from a self-report survey, which has disadvantages. Participants' mood, environment, and ability to recall pertinent information could have biased responses. Furthermore, responses were not assessed for social desirability. Evidence suggests computer-mediated effects lessen social desirability susceptibility for self-report administration (Dillman et al., 2009). Second, while it is assumed that all participants were enrolled in courses that fully implemented the E-Model design, little is known about the inner workings of the ten essential components at the respective institutions. Third, while the low response rate presents cause for concern, the sample size is sufficient to model the regression relationships in the data. Existing research suggests representation from low response rates can accurately represent the data and be comparable to the representativeness of higher response rates, thereby minimizing bias concerns (Fosnacht, Sarraf, Howe, & Peck, 2017; Lambert, & Miller, 2014). Fourth, the FDI and MR indices produced acceptable values supporting the potential generalizability of the factors to be accurate and reliable.

However, the lack of gender and ethnic diversity could affect the generalizability of the results. Despite limitations, the study provides convincing evidence of the construct validity and reliability of the EMMS items.

### Implications

Integral to college success is transitions management (Musamali, 2019). An essential component of transitions management is healthy psychological well-being (Grabau, 2011). Results of the current study have both practical and theoretical significance regarding the extent to which student-focused learning experiences can be supportive of students' BPN (Ryan & Deci, 2017). Theoretically speaking, when social settings support the BPN, individuals thrive and are more willing to persist and more likely to be motivated internally to better manage disruptions from external factors (Ryan & Deci, 2017). Results suggest that the EMMS items can be used to assess the effectiveness of student-focused settings or environments implementing the E-Model design for course instruction. In addition, empirical evidence suggests that these learning settings are better suited for the autonomous learner but can provide opportunities for the less autonomous learner to become more autonomy-natured (Williams, 2016).

Practically speaking, several implications exist. First, the EMMS can evaluate whether social settings support autonomous learning needs related to affective factors and academic motivation (e.g., anxiety or self-efficacy; Bonham & Boylan, 2011). Second, the EMMS can assess the extent to which autonomy-supportive instructional behaviors influence instructor-relatedness to provide emotional or instrumental support (Federici & Skaalvik, 2014; Patrick et al., 2011). Third, the EMMS can assess the extent of the appreciation or value of using educational technology to enhance the learning experience. These technologies are a central component of student-focused actively-engaged learning experiences (Twigg, 2011). Anecdotal evidence suggests that adult learners transitioning to college have minimal technological skills, which can hinder student success (Karmelita, 2020). All the more reason to assess the impact of using educational technology to support students' BPN. Fourth, the EMMS can be used to assess the extent of the use of learning strategies to help students succeed. Using learning strategies is a sign that students develop into more self-directed learners (Cho & Heron, 2015). Finally, the EMMS can serve an essential role

in evaluating the effectiveness of student-focused settings to support students' psychological well-being, mainly when transition experiences include mathematics learning support as an integral part of a student success initiative (Bonham & Boylan, 2011).

### Future Research

The items of the EMMS can be adapted to be domain-specific. Therefore, future research should adapt items to assess the effectiveness of transitions programs to be autonomy-supportive of students' BPN. Empirical evidence suggests autonomous students who exhibit high self-efficacy are more motivated and more likely to handle disruptions during the transition to college (Grabau, 2011). Given that items of the EMMS were developed using a theoretical framework rooted in SDT, a necessary next step is to continue the validation process with a more representative sample using a confirmatory framework (e.g., Confirmatory Factor Analysis). Moreover, future research should re-evaluate convergent and examine divergent validity using more appropriate domain-specific subscales. Additional explorations should investigate the predictive nature of the EMMS items to provide insight into factors related to transitions, persistence, and academic motivation. Further explorations should include demographic variables and student outcome data (e.g., pre/post-test scores, GPA, etc.). The main objective is to use the EMMS items to assess the effectiveness of student-focused settings to be autonomy-supportive, contribute to successful college transition, and positively impact student success and retention.

### Conclusion

Ensuring a smooth transition to college should be a top priority for post-secondary institutions. Students entering college are susceptible to a multitude of "dramatic" experiences that can profoundly affect academic motivation and psychological well-being (Grabau, 2011); their desire to be self-directed, competent, and feel connected to the college community (Ryan & Deci, 2017). Developing a survey instrument that could assess students' psychological well-being in more autonomous or student-focused settings was a first step toward exploring and validating the latent traits of the EMMS items. The EMMS is the only instrument developed to fulfill this purpose by targeting student-centered learning in post-secondary education.

Despite limitations, assessing the validity and reliability of the EMMS items produced four parsimonious factor solutions. Appropriate psychometric analysis suggests the potential generalizability of the EMMS to be supportive of students' BPN. However, results should be interpreted with caution given the low response rate and lack of gender and ethnic representation in the data. Results were further supported by *G-H* Latent and Observed indices for assessing replicability. While empirical evidence suggests that the E-Model methodology is better suited for the more self-directed learners (Williams, 2016), the implications of utilizing the EMMS can provide additional insight regarding the effectiveness of the E-Model in supporting the BPN of the less autonomous learners.

### References

- Ashby, J., Sadera, W. A., & McNary, S. W. (2011). Comparing student success between developmental math courses offered online, blended, and face-to-face. *Journal of Interactive Online Learning*, 10(3), 128-140. Retrieved from <https://eric.ed.gov/?id=EJ963670>
- Bonham, B. S., & Boylan, H. R. (2011). Developmental mathematics: Challenges, promising practices, and recent initiatives. *Journal of Developmental Education*, 34(3), 1-10. Retrieved from <https://files.eric.ed.gov/fulltext/EJ986273.pdf>
- Bray, A., & Tangney, B. (2017). Technology usage in mathematics education research – A systematic review of recent trends. *Computers & Education*, 114 (2017), 255-273. Retrieved from <https://doi.org/10.1016/j.compedu.2017.07.004>
- Center for Self-Determination Theory [CSDT]. (2022). <https://selfdeterminationtheory.org/>
- CheckMarket. (n.d.). Sample size calculator. Medallia. Retrieved from <https://www.checkmarket.com/sample-size-calculator/>
- Chen, G. (2019, November 17). *8 reasons why community college might be the best choice after high school*. Community College Review. Retrieved from <https://www.communitycollegereview.com/blog/8-reasons-why-community-college-might-be-the-best-choice-after-high-school>

- Cho, M.-H., & Heron, M. L. (2015). Self-regulated learning: the role of motivation, emotion, and use of learning strategies in students' learning experiences in a self-paced online mathematics course. *Distance Education, 32*(1), 80-99. doi: 10.1080/01587919.2015.1019963
- Cho, M.-H., & Kim, B. J. (2013). Students' self-regulation for interaction with others in online learning environments. *The Internet and Higher Education, 17*(1), 69-75. doi:10.1016/j.iheduc.2012.11.001
- Chow, C. W., & Chapman, E. (2017). Construct validation of the motivated strategies for learning questionnaire in a Singapore high school sample. *Journal of Educational and Developmental Psychology, 7*(2), 107-123. doi: 10.5539/jedp.v7n2p107
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159. doi: 10.1037/0033-2909.112.1.155
- Colton, D., & Covert, R. W. (2007). *Designing and constructing instruments for social research and evaluation*. San Francisco, CA: John Wiley & Sons, Inc.
- Cullaty, B. (2011). The role of parental involvement in the autonomy development of traditional-age college students. *Journal of College Student Development, 52*(4), 425-439. doi: 10.1353/csd.20110048
- Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and wellbeing in the work organizations of a former Eastern bloc country: A cross-cultural study of self-determination. *Personality and Social Psychology Bulletin, 27*(8), 930-942. doi: 10.1177/0146167201278002
- Dillman, D. A., Phelps, G., Tortora, R., Swift, K., Kohrell, J., Berck, J., & Messer, B. L. (2009). Response rate and measurement differences in mixed-mode surveys using mail, telephone, interactive voice response (IVR) and the internet. *Social Science Research, 38*(1), 1-18. doi:10.1016/j.ssresearch.2008.03.007
- Distefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research and Evaluation, 14*(20), 1-11. <http://pareonline.net/pdf/v14n20.pdf>
- Dun, T. J., Baguley, T., & Brunsdon, V. (2014). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *British Journal of Psychology, 105*(3), 399-412. doi: 10.1111/bjop.12046
- Federici, R. A., & Skaalvik, E. M., (2014). Students' perceptions of emotional and instrumental teacher support: Relations with motivational and emotional responses. *International Education Studies, 7*(1), 21-36. doi: 10.5539/ies.v7n1p21
- Ferrando, P. J., & Lorenzo-Seva, U. (2017). Program FACTOR at 10: Origins, development and future directions. *Psicothema, 29*(2), 236-240. doi: 10.7334/psicothema2016.304
- Ferrando, P. J., & Lorenzo-Seva, U. (2018). Assessing the Quality and Appropriateness of Factor Solutions and Factor Score Estimates in Exploratory Item Factor Analysis. *Educational and Psychological Measurement, 78*(5), 762-780. doi:10.1177/0013164417719308
- Fosnacht, K. F., Sarraf, S. A., Howe, E., & Peck, L. K. (2017). "How important are high response rates for college surveys?." *The Review of Higher Education, 40*(2), 245-265. doi: 10.1353/rhe.2017.0003
- Gagne, M., Ryan, R. M., & Bargmann, K. (2003). Autonomy support and need satisfaction in the motivation and wellbeing of gymnasts. *Journal of Applied Sport Psychology, 15*(4), 372-390. doi: 10.1080/714044203
- Gaskin, C. J., & Happell, B. (2014). On exploratory factor analysis: A review of recent evidence, an assessment of current practice, and recommendations for future use. *International Journal of Nursing Studies, 51*(3), 511-521. doi: 10.1016/j.ijnurstu.2013.10.005
- Gibson, T. O. Jr., Morrow, J. A., & Rocconi, L. M. (2020). A modernized heuristic approach to exploratory factor analysis. *The Quantitative Methods for Psychology, 16*(4), 295-307. doi:10.20982/tqmp.16.4.p295



- Grabau, L. (2011). Academic motivation and student development during the transition to college. *Kentucky Journal of Excellence in College Teaching and Learning*, 7(1), 7-20. Retrieved from <https://encompass.eku.edu/kjectl/vol7/iss1/1>
- Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology*, 102(3), 588-600. doi: 10.1037/a0019682
- Kargar, M., Tarmizi, R. A., & Bayat, S. (2010). Relationship between mathematical thinking, mathematics anxiety and mathematics attitude among university students. *Procedia – Social and Behavioral Sciences*, 8(2012), 537-542. doi: 10.1016/j.sbspro.2012.12.074
- Karmelita, C. (2020). Advising adult learners during the transition to college. *NACADA Journal*, 40(1), 64-79. doi: 10.12930/NACADA-18-30
- Lambert, A. D., & Miller, A. L. (2014). Lower response rates on alumni surveys might not mean lower response representativeness. *Educational Research Quarterly*, 37(3), 38-51. Retrieved from <https://eric.ed.gov/?id=EJ1061974>
- Legault, L. (2017). Self-determination theory. *Encyclopedia of Personality and Individual Differences*. Retrieved from <https://www.researchgate.net/publication/317690916> Self-Determination Theory. doi: 10.1007/978-3-319-28099-8\_1162-1
- McAuley, E., Duncan, E., & Tammen, V.V. (1989). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A confirmatory factor analysis. *Research Quarterly for Exercise and Sport*, 60(1), 48-58. doi: 10.1080/02701367.1989.10607413.
- Mill, K. (2005). Math emporium. *The National Center for Public Policy and Higher Education*. Retrieved from <http://www.highereducation.org/crosstalk/ctbook/pdfbook/MathEmporiumBookLayout.pdf>.
- Musamali, K. (2019). Advancing college success using a transition model. *Advances in Social Sciences Research Journal*, 6(8), 430-443. doi: 10.14738/assrj.686897
- Oates, G. (2011). Sustaining integrated technology in undergraduate mathematics. *International Journal of Mathematical Education in Science and Technology*, 42(6), 709-721. doi: 10.1080/0020739x.2011.575238.
- Osborne, J. W. (2014). *Best practices in exploratory factor analysis*. Retrieved from [https://www.researchgate.net/profile/Jason-Osborne/publication/265248967\\_Best\\_Practices\\_in\\_Exploratory\\_Factor\\_Analysis/links/5405ec140cf23d9765a79c54/Best-Practices-in-Exploratory-Factor-Analysis.pdf](https://www.researchgate.net/profile/Jason-Osborne/publication/265248967_Best_Practices_in_Exploratory_Factor_Analysis/links/5405ec140cf23d9765a79c54/Best-Practices-in-Exploratory-Factor-Analysis.pdf)
- Ott, R. L., & Longnecker, M. (2016). *An introduction to statistical methods and data analysis (7th ed)*. Belmont, CA: Brooks/Cole. CENGAGE Learning.
- Patrick, H., Kaplan, A., & Ryan, A. M. (2011). Positive classroom motivational environments: Convergence between mastery goal structure and classroom social climate. *Journal of Educational Psychology*, 103(2), 367-382. doi: 10.1037/A0023311
- Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*. Thousand Oaks, CA: Sage Publications.
- Piercey, V., & Aly, G. (2019). Finding beauty: A case study in insights from teaching developmental mathematics. *Journal of Humanistic Mathematics*, 9(2), 130-148. doi: 10.5642/jhummath.201902.09
- Pintrich, P. R., Smith, D. F. A., Garcia, T., & McKeachie, W. J. (1991). *A Manual for the Use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. National Center for Research to Improve Postsecondary Teaching and Learning, Ann Arbor, MI. Retrieved from <http://files.eric.ed.gov/fulltext/ED338122.pdf>

- Reeve, J. (2012). A self-determination theory perspective on student engagement. In S. L. Christenson, A. L. Reschly & C. Wylie (Eds), *Handbook of research on student engagement* (pp. 149-172). New York: Springer.
- Reeve, J., & Cheon, S. H. (2021). Autonomy-supportive teaching: Its malleability, benefits, and potential to improve educational practice. *Educational Psychologist*, *56*(1), 54-77.  
<https://doi.org/10.1080/00461520.2020.1862657>
- Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology*, *98*(1), 209-218. doi: 10.1037/0022-0663.98.1.209
- Rhodes, M. G. (2019). Metacognition. *Teaching of Psychology*, *46*(2), 168-175.  
doi: 10.1177/0098628319834381
- Ryan, R. M., & Deci, E. L. (2017). *Self-Determination Theory: Basic psychological needs in motivation, development, and wellness*. New York, NY: The Guildford Press
- Ryan, R. M., & Powelson, C. L. (1991). Autonomy and relatedness as fundamental to motivation and education. *The Journal of Experimental Education*, *60*(1), 49-66.  
Retrieved from  
<http://www.jstor.org/stable/20152311>
- Schraw, G. (1998). Promoting general metacognitive awareness. *Instructional Science*, *26*(1-2), 113-125. doi: 10.1023/A:1003044231033
- Schutte T., Tichelaar, J., Dekker, R. S., Thijs A., de Vries, T. P., Kusrkar, R. A.,...van Agtmael, M. A. (2017). Motivation and competence of participants in a learner-centered student-run clinic: An exploratory pilot study. *BMC Medical Education*, *17*(23). doi: 10.1186/s12909-017-0856-9
- Selwyn, N. (2011). Editorial: In praise of pessimism – the need for negativity in educational technology. *British Journal of Educational Technology*, *42*(5), 713-718. doi: 10.1111/j.1467-8535.2011.01215
- Sevari, K. (2017). Construction & Validation of Main Psychological Needs Scale. *American Journal of Applied Psychology*, *5*(1). doi: 10.12691/ajap-5-1-2
- Skaalvik, E. M., Federici, R. A., & Klassen, R. M. (2015). Mathematics achievement and self-efficacy: Relations with motivation for mathematics. *International Journal of Educational Research*, *72*(2015), 129-136. doi: 10.1016/j.ijer.2015.06.008
- Tabachnick, B., & Fidell, L. (2019). *Using multivariate statistics (7th ed.)*. New York, NY: Routledge.
- Twigg, C. A. (2011). The math emporium: Higher education's silver bullet. *Change: The Magazine of Higher Learning*, *43*(3), 25-34.  
doi. 10.1080/00091383.2011.569241
- Twigg, C. A. (2013). Improving learning and reducing costs: Outcomes from changing the Equation. *Change: The Magazine of Higher Learning*, *45*(4), 6-14.  
doi: 10.1080/00091383.2013.80616
- Valentine, J. C., Konstantopoulos, S., & Goldrick-Rab, S. (2017). What happens to students placed into developmental education? A meta-analysis of regression discontinuity studies. *Review of Educational Research*, *87*(4), 806-833.  
doi: 10.3102/0034654317709237
- Vallerand, R. J., Pelletier, L. G., & Blais, M. R., (1992). The academic motivation scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, *52*(4), 1003-1017. doi: 10.1177/0013164492052004025
- Wachs, P. M., & Cooper, D. L. (2002). Validating the student developmental task and lifestyle assessment: A longitudinal study. *Journal of College Student Development*, *43*, 124-129.  
Retrieved from <https://eric.ed.gov/?id=EJ642673>
- Williams, S. P. (2016). Math emporium model: Preparing developmental students for college algebra. (Doctoral dissertation). Retrieved from  
<http://aquila.usm.edu/dissertations/417>
- Wright, D. (2010). Orchestrating the instruments: Integrating ICT in the secondary mathematics classroom through handheld technology networks. *Technology, Pedagogy and Education*, *19*(2), 277-284.  
doi: 10.1080/1475939X.2010.491239

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