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SELF-REGULATED LEARNING AND EDUCATION: GRADUATE STUDENTS' PREFERENCES FOR ONLINE VS. FACE-TO-FACE LEARNING FORMATS

First emerging in the 1970s, the notion of life-long-learning (LLL) has gained wider popularity in the early 2000s. Quantum leaps in technology and disruptions of long-standing paradigms lead to the realization that the lifespan of information and knowledge is ever shorter. Hence education and training were no longer perceived as anecdotal and time-bound (e.g., schooling or academic learning) but rather as a lifelong, self-directed process in which individuals and groups constantly seek knowledge and skills they need to effectively function in a changing world (Boyer et al., 2014). Within this approach to education, training and human development, learners are expected to gain independence in directing and managing their own learning. Being dependent on teachers, educators, or even college professors, in the mediation and presentation of information and knowledge is counterproductive if we consider the need to learn in a lifelong, never-ending cycle (Chen et al., 2023).

These changes gave rise to the concepts of self-directed learning (SDL), referring to a broader perspective on goal-setting, learning strategies, and practically any aspect of the learning process at the learners' level, and Self-Regulated Learning (SRL), a concept that focuses on the mental, motivational, and meta-cognitive components of independent learning (Linkous, 2021). In

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this study we focus on individuals' regulation of their studies once they are already within the process, therefore using the concept of SRL.

Even within structured learning programs, there is ample room and of course the expectations of independent learning: while academic programs often present predetermined learning goals, set standards for learning processes, assignments and learning outcomes assessment, learners are still expected to set personal goals, organize their time, set priorities, select strategies and tactics that serve them best in effectively learning new material and, if need be, request help and support (Zimmerman, 2000). That being said, students vary greatly in the extent to which they are motivated and capable of SDL/SRL (Mercado-Sierra & Northam, 2023; Wilbraham et al., 2024).

These differences may become even more significant when learning takes place in different settings. Generally speaking, in "traditional" learning settings (i.e.: face to face, lecture or seminar based, on campus learning vs. distance learning, e-learning, synchronous or asynchronous) students are required to demonstrate varying levels of self-management and regulation to successfully complete their studies. It is claimed that traditional settings, while they tend to be more supportive and structured, leave less room for independence and active learning experiences. Distance, online learning, especially in an asynchronous mode, is much less structured and supportive, demanding that students set priorities, manage their time when the circumstances do not always support learning (Wong et al., 2019). We may therefore ask: How do self-regulated learning skills and pre-dispositions account for students' preference for each of the learning formats mentioned above? We hypothesize that self-regulated learning aspects mediate associations between the learners' background and demographic variables and their preference for learning formats.

1. LITERATURE REVIEW

1.1 Learning formats in higher education

Academia has a very long tradition and specific rules governing learning, teaching and the production of knowledge. It is therefore academia's nature to experiment with and discuss new approaches and practices – we are seeing a blend of traditional learning and teaching formats that have been around since the ninth century such as the lecture, audio presentation in defense of an idea

or a thesis, etc. (Zheng et al. 2020), with current tools and approaches such as "the flipped classroom" model, student-led studies (independent study), and most recently, asynchronous online distance learning (Hung et al., 2024). While approaches are very diverse even in traditional academic settings, we may be able to draw a basic distinction between two formats of academic learning:

– traditional learning, which usually takes place on campus, and face to face, managed and lead by a teaching expert, in pre-determined time slots; information is presented predominantly by the teacher who mediates and negotiates the learning process for the students;

– e-studies or distance studies are characterized by the need for self-management in learning: assuming responsibility for one's time, effort and resources for information and assistance if necessary; teachers' mediation and learning management is significantly decreased, and more responsibility and management load is placed on the learner (Defreitas & Roberts, 2003; Gherhes et al., 2021).

While the ultimate goals and often learning outcomes of both formats are quite similar, the process and level of self-direction and management expected of the students varies dramatically between the two formats.

1.2 Demographics and learning preferences

Age and gender have been identified in the existing literature as demographic factors associated with a preference for a specific learning format. Thus, for example, being a woman and older were associated in a relatively early study comparing learning formats with a preference for distance/online learning (Harris & Gibson, 2006). More recent studies show a potentially more complex association pattern between various demographics, learning styles and preference for either face-to-face or online learning (Anggrawan et al., 2021). We therefore included gender, age, education level (as an indirect measure of previous experience) and marital status as demographic factors that may interact with learning format preferences.

1.3 Self-regulation of learning

Self-regulated learning (SRL) is defined as a process where learners actively plan, monitor, and evaluate their own learning to achieve personal goals (Zimmerman & Schunk, 2011; Schunk & Zimmerman, 2012). It encompasses cognitive, metacognitive, behavioral, motivational, and emotional aspects of learning (Panadero, 2017). SRL involves setting goals, using learning strategies, self-evaluating progress, and maintaining self-efficacy (Schunk & Zimmerman, 2012). Various theoretical models have been proposed to explain SRL, including operant, information processing, and social cognitive approaches (Schunk & Zimmerman, 2012). Research has shown that SRL processes significantly influence learners' achievement, cognitions, behaviors, and emotions (Schunk & Zimmerman, 2012). Educators can promote SRL by instructing learners about effective thinking patterns, self-regulation processes, and assigning activities that involve self-regulation (Moran, 2005). SRL is considered crucial for college students' academic success, and both students and faculty can work towards fostering these skills (Pintrich, 1995).

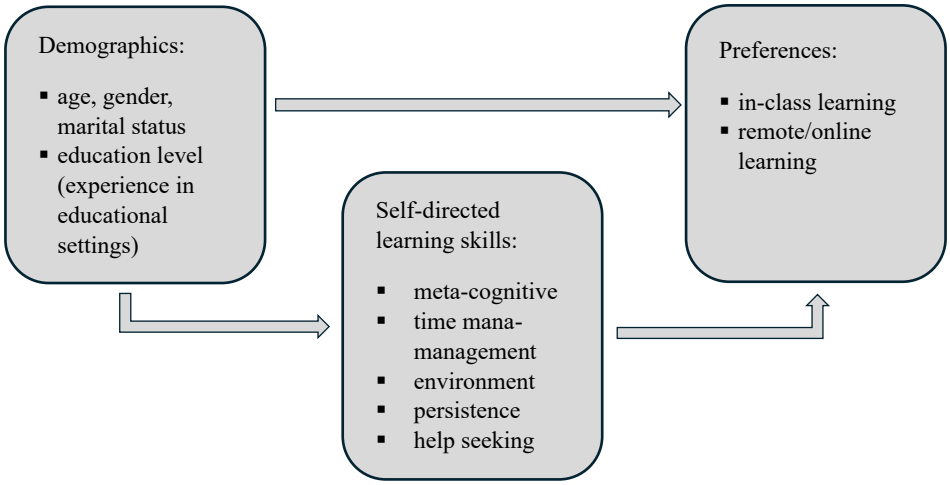
SRL may be regarded as a product of personal pre-dispositions, previous learning experiences, and even cultural assumptions directing how people "should learn". It is often suggested that SRL can be instilled not only at young age but also in adult learners (Hofer et al., 1998). Thus we may expect that experienced students (such as graduate students, or those with advanced degrees or experience in teaching) may show higher levels of SRL.

The distinction we made earlier between "traditional" and "distance/e-learning" formats emphasizes the underlying need for self-management and self-regulation of learning processes in each format: we may claim that traditional formats may require less SRL than the newer ones (Boshoff-Knoetze et al., 2023). Thus we refer to SRL as a mediating process between personal characteristics and demographics and the preference for traditional learning or e-learning.

2. THIS STUDY

Based on the literature review above, let me propose a model to account for advanced students' preferences regarding studying in class or remotely:

Figure 1. Theoretical study model



Our hypothesis is as follows:
Self-directed study skills mediate the association between personal background characteristics and students' preferences for the study mode (in class or remotely). More specifically, we can expect that

– age and gender are positively linked to preference for in-class study (women are more like to prefer that);

– marital status (having children and family) and education are positively linked to a preference for online/remote study;

– most self-directed learning sub-scales (with the exception of environment and help-seeking) are positively correlated with remote/online studies and negatively with in-class study;

– environment and help-seeking are negatively associated with a preference for remote/online study and positively with in-class learning.

3. METHODS

3.1 SAMPLE

The study took place in the spring of 2025, covering 122 teachers attending various master's degree programs in a mid-sized teachers college in northern Israel. They were recruited through academic forums and institutional mes-

saging systems (89% were women and 11% were men). The mean age was 40.36 (*SD* = 10.07), and most of them (88%) had a bachelor's degree and the rest reported having a master's degree. Two thirds were married or in a stable relationship with a significant other, while the others reported being single or divorced. About 10% of the participants did not report their family/marital status. A mean of 8.40 years (*SD* = 6.44) years had passed since their last formal studies.

3.2 Measures

Demographics. Non-identifying personal data was collected regarding the participants' age, gender, educational level, marital and family status, etc.

Self-directed learning. A self-report, a popular and validated questionnaire was used, based on the Self-Regulated Learning Questionnaire, originally created to assess the learning through Massive Open Online Courses (MOOCs) but slightly modified to reflect broader contexts of learning (Jansen et al., 2017). This 36-item questionnaire reflects five tactics for self-regulated learning associated with effective and sophisticated independent, on-going learning in adults including: meta-cognitive, time management, environment structuring, persistence and help seeking. The questionnaire shows adequate psychometrics with internal consistency coefficients ranging .65–.84.

Preferences for learning format. These were assessed using two simple direct questions: "To what extent do you prefer to study in class [or remotely via online applications – in the second item] in your current study program?" with a 5-point Likert scale from *Not at all* to *Very much*.

3.3 Procedure

The study was approved by the authors' Institutional Review Board. Online questionnaires were then distributed among two cohorts of master's students,. who were elementary and middle school teachers, pursuing their master's degrees. They were asked to participate in "a study of students' preferences regarding study methodologies and formats". It was clarified that participation (or refusal to participate) will have no consequences for their studies or any other aspect of their lives and that data collected is totally anonymous. Filling out the questionnaires took about 7–10 minutes.

Once data was collected, subscale grades were computed for each of the five subscales.

4. RESULTS

4.1 Descriptive statistics

Before testing the model underlying this study, we reviewed the descriptive statistics for the main variables included in it. We also looked at zero-order Pearson's correlations between them. Table 1 summarizes these indices.

Table 1. Descriptive statistics and zero order correlations (n = 101)

	Mean / *SD*	1	2	3	4	5	6	7	8	9	10
Gender	female: 89%	—									
	male: 11%										
Marital	single: 30%		—								
status	attached: 65%										
Education	BA: 90%			—							
	MA: 10%										
MC	3.61				—						
	.64										
TM	3.24				.32**	—					
	.88										
ENV	4.35				.58**	.20*	—				
	.68										
PER	3.92				.51**	.17*	.39**	—			
	.82										
HLP	3.48				.25*	–.02	.30**	.29**	—		
	.82										
In class	3.35				.11	–.03	–.02	.00	.28**	—	
	1.26										
Remote	3.54				.17*	.00	.16	.20*	.01	–61**	—
	1.27										

Note. MC = Meta-Cognition, TM = Time management, ENV = Environment management, Per = Persistence, HLP = Help seeking. Missing correlations are impossible to calculate since one of the variables is dichotomous.

The descriptive indices reflect a relatively high level of self-perceived aspects of self-guided and independent study skills, which is to be expected in a sample of master's students. Of these aspects time management is the lowest endorsed – predictably in a group of working people, many of them married or with family or study obligations. Environment management was ranked highest, reflecting good practices of organizing one's immediate environment to support their studies. As for preferences for in-class or remote learning, the rankings are quite similar to each other with relatively high dispersion indices illustrating higher heterogeneity in the distribution of preferences.

The correlation pattern supports the construct validity of the measures, showing adequate inter-correlations among the sub-scales of the questionnaire. As expected, the items reflecting preferences toward in class or remote learning were strongly and negatively correlated. Interestingly, preliminary correlations between the subscales and study preferences are evident here with meta-cognitive aspects, showing a mild positive association with preference for remote studies as did persistence, while help-seeking was linked to preference for in-class studies.

4.2 Model testing

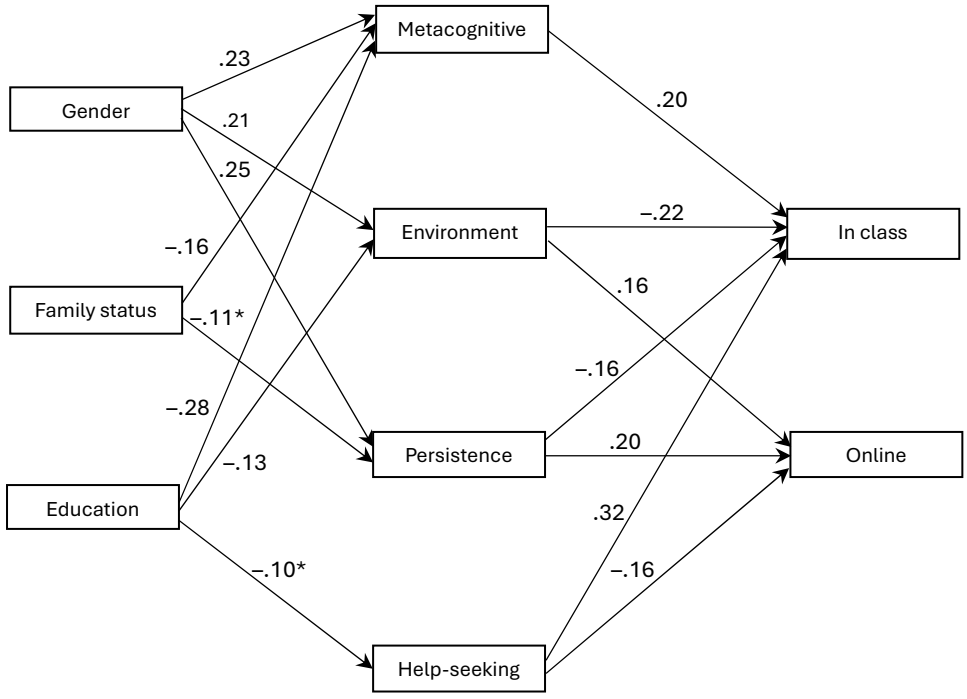
We next used AMOS 29.0 (IBM 2024) to test our mediation model. While the full model as presented earlier was not supported by the data, by eliminating non-significant paths we arrived at a model that had good fit to our data. Table 2 depicts the indirect effects in the model, and Figure 2 summarizes the findings.

Table 2. Indirect effects in the model (n = 101)

	Std. indirect effect Remote learning	Std. indirect effect In-class learning
Gender	–.16*	–.27**
Marital status	–.04	–.05
Education	.32**	–.11*

*p < .05, **p < .01.

Figure 2. The empirical path model (n = 101)



Note. Error expressions were omitted from the figure for brevity. All noted path coefficients are statistically significant at $p > .05$ or better. Goodness of fit indices: $\chi^2 = 22.22$, $df = 16$, $p > .05$; CFI = .96, NFI = .92, IFI = .96, RMSEA = .06.

The empirical model, though slightly reduced compared with the original hypothetical model, still supports the general patterns we hypothesized to manifest in the overall view of the dynamics associated with learning format preferences: aspects of self-regulated learning mediated the associations between students' demographic characteristics and their preferences for in-class or online/remote learning. Some of these patterns however, offered unexpected results.

While marital status showed an expected negative association reflecting that married students reported lower self-directed tactics than their single/divorced counterparts, education level showed an unexpected negative association with self-directed learning! Of special note is the relatively high negative correlation with metacognitive skills. The link between the self-directed learning subscales and learning preferences was more in line with our

hypothesized model: metacognitive skills were positively associated with in-class learning preference. Environment showed a negative association with in-class learning and a positive link to remote/online preferences; persistence showed a preference for remote/online while help-seeking, expectedly, was associated with a preference for in-class learning.

The indirect effects suggest that gender and education were the best predictors of learning preference with education linked to a preference for remote learning and gender showing negative association (higher preferences among women) for both methods with a stronger effect size for in-class learning.

DISCUSSION AND CONCLUSIONS

This study proposed and tested a model in which self-regulated learning strategies mediate the associations between learners' demographic characteristics and their preference for a certain learning format (traditional/face to face vs. distance/e-learning). We collected data from 102 teachers studying for their master's degree in an Israeli mid-sized college and found partial support for our model.

Interestingly, none of the demographics showed a direct effect on the learning format preference – all the effects were indeed mediated by four of the five SRL factors: Meta Cognitive aspects of SRL as well as help-seeking behavior were correlated positively with preference for the in-class/traditional learning format. The other two (creating a supportive environment and persistence) were positively associated with preference toward distance/e-learning. For three of the four included aspects of SRL preferences for in-class or online learning showed an inverse pattern: factors positively linked to one actually did the opposite with the other. However metacognition was found to positively correlate with preference for in-class learning and did not correlate at all with online learning.

Generally the results echo existing evidence for possible associations among the study variables: gender and marital status showed the expected correlations with the process and outcome variables, thus shedding new light on well-known links, for example, the finding suggesting that women (rather than men) who have families will prefer distance learning e-learning (Harris & Gibson, 2006) is now possible to be explained by the availability of learning strategies allowing them to do better in online self-directed learning settings. Looking at our empirical model, we see that being female is positively asso-

ciated with three out of the four included SRL strategies (except help-seeking) and those mostly associated with a preference for online study. Interestingly those higher on help-seeking showed a preference toward in-class learning – probably finding it easier to ask for help in these settings (an actual instructor present).

The above insights into the association already found in the literature allow us to see a process rather than anecdotal correlations. SRL serves as an instrument or a driver of a process of more effective self-management and coping as an independent learner in settings that do not lend themselves to external structuring and mediation of the learned materials. It is shown to be a driver of learning preferences making learning more flexible, more available, and therefore may be considered a factor promoting life-long learning, especially in adulthood, when most learners often combine work, family like and academic/professional learning.

One cautionary tale may emerge from our results that is worth dwelling upon: accumulated education (whether the students arrived at the master's program with undergraduate or another graduate degree) reflecting actual experience in academic settings, associated negatively with 3 out of the 4 components of SRL (but unlinked to the fourth). While the evidence is too anecdotal on its own to draw a broad conclusion it may be worth dedicating future attention to the added value of higher education as an asset in promoting SRL – do we really self-sabotage by somehow making individuals with higher education more reliant on mediation and external support rather than more independent learners?

Study limitations and possible directions for future studies

When interpreting or trying to generalize our results and findings, one should bear in mind the study's limitations. While providing enough statistical power, our sample is in no way representative of the graduate student body in education/teaching. Cultural and national settings influencing and shaping the program of study, attitudes toward learning and availability of resources for learning may have biased the results, and these findings should be tested in additional education systems to be able to draw conclusions as for the results and the model's generalizability. The use of self-report measures may have led to biases that are known to plague this medium of data collection. Future studies may consider integrating external measures of performance or achievement

to remedy that aspect. Adding longitudinal design studies to test the model – as it suggests a time-order and process that should take place during the learning period – may also help consolidate the validity of these findings.

Limitations notwithstanding, the results offer a process-oriented interpretation of the associations recorded between demographics and learning preferences, thus also adding to our understanding of the value of SRL strategies in various learning settings in advanced educational context.

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SELF-REGULATED LEARNING AND EDUCATION: GRADUATE STUDENTS' PREFERENCES FOR ONLINE VS. FACE-TO-FACE LEARNING FORMATS

SUMMARY

As educators the world over acknowledge the value of independent learning, in academia, and especially in college graduates, self-regulated learning (SRL) is expected both as an acquired academic skill and for teaching students, also as a value and skill they are expected to instill in their pupils. We present and test a model that may help understand the role of SRL in students' learning format. We hypothesize that self-directed learning skills and preferences will mediate the associations between students' personal characteristics and preferred learning format (traditional vs. distance/online). We asked 122 educators following master's courses in northern Israel to report demographics, SRL skills and their preferred format of learning (traditional or online). The results provide partial support for the model suggesting that 4 out of the 5 components of SRL indeed mediated the relations between gender, marital status and previous education and preferences for either in-class, traditional face-to-face learning or online/distance learning. The results may help enhance our understanding of the role of SRL in lifelong learning and development as well as teachers' ability and inclination to teach self-direction and self-regulation in learning.

Keywords: self-regulated learning; graduate student; independent learning; lifelong learning; quantitative research

SAMOREGULOWANE UCZENIE SIĘ I KSZTAŁCENIE: PREFERENCJE STUDENTÓW STUDIÓW MAGISTERSKICH CO DO FORMATÓW NAUKI ONLINE W PORÓWNANIU Z NAUKĄ STACJONARNĄ

STRESZCZENIE

Pedagodzy na całym świecie dostrzegają zalety samodzielnego uczenia się, dlatego w środowisku akademickim, a zwłaszcza wśród absolwentów szkół wyższych, samoregulowane uczenie się (*self-regulated learning*, SRL) jest pożądaną umiejętnością nabywaną w toku studiów, a także wartością i umiejętnością, którą powinni oni przekazywać swoim uczniom. Przedstawiamy i testujemy model, który może pomóc w zrozumieniu roli SRL w formacie nauki studentów. Stawiamy hipotezę, że umiejętności i preferencje w zakresie samodzielnego uczenia się będą pośredniczyć w korelacji między cechami osobowymi studentów a preferowaną formą nauki (tradycyjna vs. zdalna/online). Poprosiliśmy 122 nauczycieli odbywających studia magisterskie w północnym Izraelu o podanie swoich danych demograficznych, umiejętności SRL i preferowanego formatu uczenia się (tradycyjny lub online). Wyniki częściowo potwierdzają model sugerujący, że 4 z 5 elementów SRL rzeczywiście pośredniczyły w relacjach między płcią, stanem cywilnym i wcześniejszym wykształceniem a preferencjami dotyczącymi nauki w klasie, tradycyjnej nauki bezpośredniej lub nauki online/na odległość. Wyniki mogą pomóc w lepszym zrozumieniu roli SRL w kształceniu ustawicznym i rozwoju, a także umiejętności i chęci nauczycieli do uczenia samokierowania i regulacji w uczeniu się.

Słowa kluczowe: samoregulowane uczenie się; student studiów magisterskich; samodzielne uczenie się; kształcenie ustawiczne; badania ilościowe