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The Identity of Young Adults and their E-learning Performance

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One of the consequences of the civilizational changes known as liquid modernity is that contemporary humans can experience a virtual reality. Traditional reality, as a result of social and cultural changes, has lost its importance as the leading factor responsible for creating and reinforcing the identities of 21st century individuals. Michel Foucault's (2005) claim that we live in a time of relocation, where young people shape their own identities, thus appears to be valid. Young people no longer exclusively navigate the real world – they look for cultural patterns and points of reference in the virtual one as well. The use of e-learning in higher education is not only inevitable, it also offers new educational opportunities. The virtual world erodes communication and interpersonal barriers, resulting in learners displaying hitherto unknown behaviors and entering into new relationships, which has an impact on how their identities develop.

Introduction

The purpose of the study was to collect information on the impact of the identity statuses of students on their academic performance, depending on their chosen form of learning. Marcia's (2002) identity development model was considered optimal for assessing the impact of personality on the performance of students utilizing e-learning methods. The newly-acquired knowledge may serve as the basis for solving already identified or partially-identified issues, as well as those which may arise in the future in the field of online education. It is the author's belief that the study constitutes a significant contribution to the rational and methodically-sound use of the internet in order to facilitate learning. Use of the internet in this way minimizes the flaws and optimizes academic performance. Although studies on e-learning are varied, they commonly overlook the incredibly important personal and pedagogical dimension, the relevance of which should not be underestimated. There is an urgent need to expand the theoretical and empirical body of knowledge to include analyses of the identities of e-learning group members, and to determine their

impact on the learning process. No studies have so far been conducted on the issue with reference to the form of learning, meaning that relevant empirical analyses are required. Other factors necessitating such research include changes in the life standards, values and needs on which young people base their actions.

Theoretical basis for the study

A theoretical and research-relevant niche exists with regard to the impact of the identity statuses of students on their academic performance. Individual personality statuses have been studied in relation to the role of the teacher or even in the social context (Brzezińska, 2000, 2003; Cuprjak, 2007); however, no empirical studies have been conducted with reference to e-learning, and no trends identified regarding the particular identity statuses being displayed. As a consequence, this knowledge is absent from the theories being developed on how to design effective e-learning environments.

This issue is particularly relevant for research into the online teaching process within the context of the role of learners, research which has been conducted in various countries for many years (Perraton as cited in Schlosser, Anderson, 1994; Saba, 2003; Moore, 2007; Kerr, Rynearson and Kerr, 2006; Rovai, 2004).

How an identity is constructed is determined by factors present in the sociocultural environment, which require constant adaption, negotiation and decision making based on current circumstances (Wróblewska, 2011, p. 176). Technological progress has resulted in humans simultaneously functioning in both the real and virtual worlds. According to Marcia's theory, four identity statuses exist: diffusion, foreclosure, moratorium and achievement. The first applies to those who plan for the short-term, experience difficulties in making decisions (solving problems), are not involved in serious life activities, are driven by personal gain and satisfaction, and are yet to experience an identity crisis. The second status involves making decisions

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The Identity of Young Adults and their E-learning Performance

with reference to an authority figure (parent, teacher, idol), involvement determined by the behavior and decisions made by that authority figure, stress resulting from having to function without the value criteria of the authority figure and no identity crises. Moratorium involves being able to see alternatives but not to make decisions, a lack of full commitment and clear direction in personal explorations, looking for a compromise between social pressure and one's own preferences; the individual begins to experience an identity crisis. The final status, achievement, involves creating one's own future in accordance with one's own preferences, making independent decisions, with involvement matching one's abilities, resistance to outside influence and being able to cope with hardships, constituting a positive resolution of an identity crisis (Cuprjak, 2013). The above indicates that the issue of assessing the maturity level of a learner's identity is an important one, albeit difficult to study. However, it is an important challenge to overcome within the context of performance for online and in-class learners.

Methodological basis for the study

The main goal of the study is to verify Marcia's identity status model and its four identity statuses, with reference to online education, and to test the validity of applying it to e-learning performance. Thus, the following questions arise:

1. What is the distribution of the academic performance of students by identity status?
2. Is there a relation between the identity status of a learner and their academic performance using in-class and e-learning methods?

A pilot study was conducted in the summer semester of the 2017/2018 academic year. It focused on one group of students – referred to as *emerging adulthood*, i.e. those who have not yet made the commitments characteristic of adults. Students of teaching were selected, as it was possible to develop a customized syllabus, online course and tests for them. The participants were selected randomly, the main criterion being participation in the education theory e-learning course. The purpose of the project was to evaluate what was required to better identify the characteristics of e-learners.

The goal of the pilot study was to operationalize the research problem clearly, verify the research tools, specify the organizational and technical requirements of the study and analyze the empirical material collected. The study was quantitative in nature, and

involved the following research methods: knowledge test and diagnostic poll (Identity Status assessment questionnaire). Nonprobability sampling was used during the first stage, the primary criterion being the use of e-learning methods. The participants were full-time, first-cycle students of teaching at the Nicolaus Copernicus University. A total of 50 students expressed interest in participating; however, due to erroneously coded tests and a failure to return them, the final sample size was 47. In the second phase, random number tables were used for random sampling, with 23 participants being assigned to the experimental group and 24 to the control group. The average age was 20, and women comprised 95% of the participants. Education-related programs are selected predominantly by women.

The participants were then assessed with regard to their identity status. For that purpose, the Identity Status assessment questionnaire developed by Magdalena Cuprjak was used. According to the author of the questionnaire: *The test is based on Cosgrove's forced choice technique (Brzeziński, 1978), where an ipsative assessment is conducted by ranking answers to every problem (in this case, four answers are provided to match the four identity statuses). A psychometric profile is created based on the partial results, enabling us to determine which of the statuses is dominant in relation to others (Cuprjak, 2013, p. 216).* In the second part of the study, the participants had to study for an entire semester using online and in-class forms to minimize the novelty effect. A knowledge test was administered at the end of each module (3 topics). The participants were tested four times.

Before administering, the tests were optimized for their difficulty, discriminatory ability and reliability (Niemierko, 1999, pp. 152–160). The tests used in the study were constructed properly from the teaching perspective. A group rotation took place after the first two tests. The final stage involved determining the impact of the variables on academic performance and verifying the utility of the model used for the purpose of explicating the issue of e-learning performance of contemporary students. Data were acquired from a total of 19 members of the experimental group and 24 members of the control group.

Result analysis and interpretation

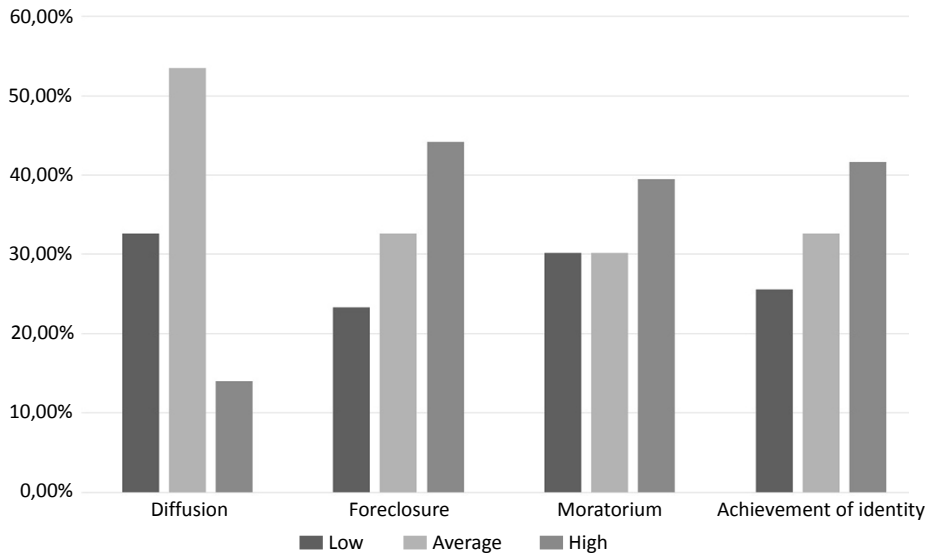
The distribution of the results achieved by the participants according to their personality status indicates that the highest scores were achieved primarily by participants in the foreclosure stage (44.2%). These were followed by achievement (41.6%), moratorium

Table 1. Percentage distribution of identity status in the education student sample

	Diffusion	Foreclosure	Moratorium	Achievement
Low	32.6%	23.3%	30.2%	25.6%
Average	53.5%	32.6%	30.2%	32.6%
High	14.0%	44.2%	39.5%	41.6%

Source: author's own work.

Figure 1. Percentage distribution of identity status in the teaching student sample



Source: author's own work.

(39.5%) and diffusion (14%). The majority of the participants were at the foreclosure stage, i.e. they did not experience an identity crisis and did not take actions of their own, but were instead involved in the various activities expected of them by an authority figure. A surprisingly high percentage of the participants were at the achievement stage, i.e. they were ready to choose and make decisions of their own based on their own explorations.

These four human identity statuses can impact how an individual enters adulthood and may influence how early adulthood activities are conducted (Brzezińska, 2017). This may in turn determine academic performance when using different teaching methods (in-class vs. online).

In order to answer another research question, whether there is a relation between the identity status of students and their academic performance using in-class and e-learning methods, a basic descriptive statistics analysis was conducted in addition to Shapiro-Wilk tests and a single-factor mixed analysis of variance. The classic threshold of $\alpha = 0.05$ was used as the significance level, though probability values where p was greater than 0.05 and less than 0.1 were interpreted as significant at the statistical trend level.

Basic descriptive statistics of the quantitative variables measured

The basic descriptive statistics were calculated for the results of the repeated measurements, in addition to a Shapiro-Wilk test of normality. One of the assumptions behind using the mixed method was that the distribution of the variables did not deviate significantly from a normal distribution. The results of the test indicated that the distribution of the results of tests 1, 2 and 4 matched the criteria of a normal distribution, with only test 3 differing in this regard. Certain doubts may arise as to the normality of the results of the latter test, as their value was 0.045, i.e. lower than 0.05. In this case, however, it was important to take into account the skewness value, which was -0.76. If its absolute value does not exceed 2, the distribution can be accepted as close to normal (George and Mallery, 2010). The relevant measurement matched the above criterion. It can thus be assumed that the distributions studied were not significantly asymmetrical with regard to the mean. Therefore, for the purpose of analyzing the results of the study, parametric tests were conducted which matched their remaining criteria. The results are presented in Table 2.

Table 2. Basic descriptive statistics for the results of each test

	<i>M</i>	<i>Me</i>	<i>SD</i>	<i>Sk.</i>	<i>Curt.</i>	<i>Min.</i>	<i>Max.</i>	<i>S-W</i>	<i>p</i>
Test 1	61.91%	63.79%	0.17	0.01	-0.32	24%	98%	0.993	0.997
Test 2	61.85%	63.54%	0.25	-0.58	-0.24	0%	100%	0.952	0.073
Test 3	71.33%	72.11%	0.14	-0.76	0.43	30%	92%	0.947	0.045
Test 4	71.31%	72.20%	0.11	-0.02	0.05	48%	95%	0.973	0.401

M – mean; *Me* – median; *SD* – standard deviation; *Sk.* – skewness; *Curt.* – curtosis; *Min.* and *Max.* – lowest and highest value in the distribution; *S-W* – Shapiro-Wilk test result; *p* – significance

Source: author's own work.

The Identity of Young Adults and their E-learning Performance

Student test results by learning method and identity

In order to verify the hypothesis that the form of learning (online or in-class) is related to the academic performance of students within the context of their identity, a 4 x 4 x 2 analysis of variance was conducted, i.e. the results of each knowledge test were multiplied by the dominant identity type by experimental or control group. This type of analysis was selected due to the way the experiment was designed, i.e. the participants were assigned to one of two groups before the study began and divided according to their dominant identity type, and were then given four knowledge tests. In order to minimize possible discrepancies resulting from any differences in difficulty between the 4 knowledge tests, which could be unrelated to the teaching method or the identity of the participants, standardized values were taken into account in the study, calculated based on the sum of the results of every test.

A statistically significant primary effect of the *group* variable was identified: $F(1; 38) = 22.76; p < 0.001; \omega^2 = 0.37$. Participants in the experimental group performed better ($M = 0.64; SE = 0.17$) than those from the control group ($M = -0.35; SE = 0.17$). No statistically significant main effects were identified for the remaining variables. No effects were observed at the statistical trend level. The above also applies to every first and second-order interaction effect analyzed.

An analysis of the simple effects conducted using the Bonferroni correction indicated that in each of the four measurements the participants who initially (between the first and second test) utilized e-learning before switching (between the third and fourth test) to in-class learning achieved significantly higher results than participants who initially used the in-class method and later switched to e-learning ($p = 0.002$ for test 1, $p = 0.002$ for test 2, $p = 0.035$ for test 3, $p = 0.027$ for test 4). The standardized results of these tests did not vary significantly between the measurements, however, which implies that the variable *test* had no statistically significant primary effect: $F(3; 114) = 0.40; p = 0.751; \omega^2 = 0.01$.

In light of the above, it is thus necessary to assume that the standardized values of the tests results were unrelated to any of the independent variables included in the study, with the exception of being assigned to the experimental or control group.

Thus, an identical analysis was conducted, this time taking into account the raw scores in all 4 tests, without standardization. As the sphericity criteria were not met [Mauchly's $W(5) = 0.47; p < 0.001$], the Greenhouse-Geisser correction of the degrees of freedom was applied. This time, a statistically significant primary effect of the variable *group* was also identified: $F(1; 38) = 27.38; p < 0.001; \omega^2 = 0.42$. A statistically significant first-order interaction was observed for the *test* and *group* variables: $F(2.10; 79.57) = 4.56; p = 0.012; \omega^2 = 0.10$. The remaining primary and interaction effects were not statistically significant.

A simple effects analysis demonstrated that for the control group the results from test 1 ($M = 55.7\%, SE = 0.04$) were significantly lower than the results from test 4 ($M = 67.5\%, SE = 0.03$). No statistically significant differences were observed in the experimental group between the results of individual tests. On the other hand, in the experimental group, the results of every test were significantly higher than in the control group ($p = 0.002$ for test 1, $p = 0.002$ for test 2, $p = 0.035$ for test 3, $p = 0.027$ for test 4). The results are presented in Table 3 and Figure 2.

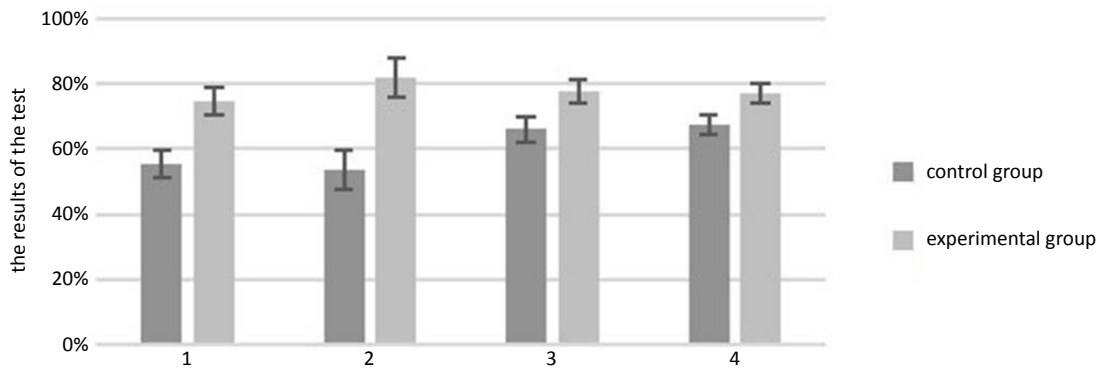
It is worth noting that the raw results of the tests were related to being a member of the experimental or control group, but not with the dominant identity type, and did not vary significantly between the four individual measurements taken, with the exception of higher results for test 4 in the control group compared to the results for test 1.

In summation, it is important to note that the study demonstrates the state of identity statuses at the point in time the study was conducted – i.e. when the test was taken. Brzezińska notes that “personality is at no point in life something set and ‘complete’, it continues to change, is constantly rebuilt and modified under the influence of new experiences. This means that there

Table 3. Summary of the results of the four tests conducted in the control and experimental groups

				95% CI	
		<i>M</i>	<i>SE</i>	<i>LL</i>	<i>UL</i>
Control group	1	55.7%	0.04	47.4%	63.9%
	2	53.9%	0.06	42.0%	65.7%
	3	66.0%	0.04	58.4%	73.6%
	4	67.5%	0.03	61.5%	73.5%
Experimental group	1	74.6%	0.04	66.2%	83.0%
	2	82.1%	0.06	70.0%	94.1%
	3	77.8%	0.04	70.0%	85.6%
	4	77.2%	0.03	71.1%	83.3%

M – mean; *SE* – standard error; *95% CI* – confidence interval between means; *LL* and *UL* – lower and upper confidence interval limits
Source: author's own work.

Figure 2. Comparison of the control and experimental group with regard to the results of each test

Source: author's own work.

is great research potential with regard to the process of how personality is formed during early adulthood and later, as well as its relations with objective and subjective adulthood indicators” (2017, p. 55). The above points to an area which is difficult to study, as personality is never constant and continues to change in various contexts. Marcia's model has been further developed and modified by other researchers to include new dimensions of human identity development based on empirical research (Brzezińska, 2017, p. 62), which is worth incorporating into subsequent studies.

Conclusions

The results of the pilot study reveal that the participants in the experimental group achieved higher results, as evidenced by their scores in test 1, where the experimental factor was introduced immediately before. Subsequent tests results were similar in that the difference in favor of students utilizing e-learning methods was markedly greater. Unfortunately, no relation was identified with the identity of learners or interactions between these factors. The only observable differences related to academic performance and the form of learning, and persisted throughout all four tests. The average results for the experimental group were between 74.6% and 82.1%, and between 53.9% and 67.5% in the control group. It is interesting to note that the control group improved to a statistically significant degree between the first and the fourth measurement. The experimental group, on the other hand, displayed similar performance across all tests. The differences between individual measurements in the experimental group were not statistically significant (see Table 3. *Summary of the results of each of the four tests conducted in the control and experimental groups*). The identity of learners does not determine their academic performance. The significant statistical differences only applied to the form of learning, favoring those using e-learning methods. These differences persisted across all tests.

The results of the pilot study demonstrate the necessity to research further issues related to the topic.

It is certainly worth repeating the empirical analyses on a much larger and more diverse sample, which would enable the results to be extrapolated into the entire population. Subsequent studies should identify the relation between the identity status of students and their chosen study program and form of learning. It may be of utility to identify age and gender differences between study participants, which would enable new study results to be published. This research may help fill a niche in both global and domestic literature on the subject, and contribute to identifying new areas for analysis and developing e-learning theories.

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The Identity of Young Adults and their E-learning Performance

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Abstract

Utilizing Marcia's theory, a pilot study was conducted to determine the relation between the identity status of students and their performance using differing teaching methods (in-class and e-learning). The sample consisted of teaching students, and the main criterion was the use of e-learning. The Identity Status Test and standardized knowledge tests were used to collect data. No relation was identified between the identity status of students and their in-class and e-learning performance. However, the group utilizing e-learning achieved better results compared to the in-class group. Determining the importance of an e-learner's identity is also necessitated by the need to develop appropriate counselling strategies. The analyses rendered possible a preliminary verification of the utility of the concept for the purpose of explicating the issue of the e-learning performance of contemporary students. The conclusions drawn from the study may also offer utility for adapting mentoring processes to the needs of learners. The author identifies and underlines the need for further, more comprehensive empirical research on the identity of e-learners within the context of their study program, age and gender.

Keywords: identity, learning, e-learning, young adult, learning outcomes

Wioletta Kwiatkowska is a teaching graduate from the Nicolaus Copernicus University, an adjunct at the Chair of Teaching and Media in Education of the Faculty of Education of the Nicolaus Copernicus University and a researcher with more than ten years' experience teaching online education methods. Her research and teaching interests focus on online education, in particular the challenges, needs and experiences of learners and teachers in online classrooms, designing e-learning courses and the quality of online education. She is the author of numerous published research articles on these topics and has participated in international and local research and teaching projects related to applying modern information technologies in education. She is also a member of the Association of Academic E-learning, Polish Pedagogical Association and the Polish Cognitive Science Association.

Modern online learning habits

Research shows us that employees are accessing the learning they need differently from how they did just a few years ago. Most are now looking for what they need away from their organisation's Learning & Development channels.

For example, it's recognized that more than 70% of employees will now use web searches to learn what they need for their jobs and are increasingly turning to their mobile devices to find just-in-time, immediate answers to their unexpected problems.

The way people are interacting with their mobile devices provides further insight into modern habits.



91% of smartphone users will turn to their devices for ideas while completing a task!



Searches related to "how to" on YouTube are growing 70% each year!



More than 70% of employees use search engines to learn what they need for their jobs; will unlock their smartphones 9 times an hour, and search videos for no longer than 4 minutes!

Employee groups web-searching to learn what they need for their jobs*

How often 87%

How often 71%

How often 69%

The Empowered Learner

WE RECOMMEND

The Empowered Learner

The white paper by Looop, commentary provided by David James

By capitalizing on recent insights into today's learners – their motivations, habits and preferences – L&D can drive improved business performance through increased learner engagement.

Research shows us that employees are accessing the learning they need differently from how they did just a few years ago. It is recognized, for instance, that more than 70% of employees will now use web searches to learn what they need for their jobs and are increasingly turning to their mobile devices to find just-in-time, immediate answers to their unexpected problems.

This White Paper reflects and interprets research and insights that have been published by various industry sources and experts in recent years.

More information at <https://www.looop.co/wp-content/uploads/2015/09/The-Empowered-Learner-White-Paper.pdf>