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Privacy and Emotional Intelligence in Technology-Based Learning

Confidentialité et Intelligence émotionnelle dans l'apprentissage basé sur la technologie

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Abstract

This study explores the influence of emotional intelligence and privacy orientation on attitudes and intentions to learn with mobile technologies. Data were collected from 272 respondents in Kazakhstan, a country with a transitioning economy. The findings reveal that both emotional intelligence and privacy orientation positively affect attitudes and intentions, except for the dimension of concern about one's own informational privacy. Additionally, a model incorporating both emotional intelligence and privacy orientation explains variations in attitudes and intentions more effectively than models with either factor alone. This research contributes to the understanding of the multidimensional constructs of mobile learning, privacy, and emotional intelligence in non-Western contexts, providing valuable insights for technology adoption in transitional economies.

Keywords: emotional intelligence, Kazakhstan, mobile technologies, privacy orientation, technology adoption

Résumé

Cette étude explore l'influence de l'intelligence émotionnelle et de l'orientation vers la vie privée sur les attitudes et les intentions d'apprendre avec les technologies mobiles. Des données ont été recueillies auprès de 272 répondants au Kazakhstan, un pays dont l'économie est en transition. Les résultats révèlent que l'intelligence émotionnelle et l'orientation vers la vie privée affectent positivement les attitudes et les intentions, sauf pour la dimension relative à la protection de la vie privée personnelle. De plus, un modèle intégrant l'intelligence émotionnelle et l'orientation vers la vie privée explique mieux les variations dans les attitudes et les intentions que les modèles les considérant séparément. Cette recherche contribue à la compréhension des construits multidimensionnels de l'apprentissage mobile, de la vie privée et de l'intelligence émotionnelle dans des contextes non occidentaux, offrant des perspectives pertinentes pour l'adoption technologique dans des économies en transition.

Mots - clés: adoption technologique, intelligence émotionnelle, Kazakhstan, orientation vers la vie privée, technologies mobiles

Introduction

This study explores the relationships between the attitude and intention to learn with mobile technologies, privacy orientation, and emotional intelligence. In the current digital era, it is essential to comprehend attitudes and intents regarding technology because these elements have a big impact on technology adoption and usage patterns (Svenningsson et al., 2022). Privacy issues, which are becoming increasingly important as digital technologies spread, affect how people interact with technology and their willingness to adopt new technologies (Jeon & Lee, 2022; Sivakumar et al., 2024; Zhang & Zhang, 2024). Emotional intelligence, which influences how people manage their emotions, interact with others, and cope with stress, can also affect their attitudes toward technology and its use (Abu-Shanab & Abu-Shanab, 2022).

By examining the relationships between these concepts, this study aims to provide a holistic understanding of the factors influencing technology adoption and privacy behaviour. Such findings can form the basis for educational strategies, policy development, and activities to improve digital literacy and technology adoption while addressing privacy concerns. Integrating emotional intelligence with technology adoption and privacy fills a research gap in the literature, offering a more complete understanding of user behaviour (Audrin & Audrin, 2024). As digital technologies are increasingly being introduced into everyday life, it is essential to understand the psychological and emotional factors influencing the introduction and use of technology (Granić, 2022; Ling et al., 2021; Roberts et al., 2021).

The purpose of this study is to explore the interrelationships between technology use, privacy orientation, and emotional intelligence in Kazakhstan, a country with a transition economy located in Central Asia. The unique context of rapid technology adoption and changing privacy issues in Kazakhstan provides valuable information about these concepts. Transition economies characterized by rapid change and adaptation offer special conditions for studying technology adoption and related behaviours (Adhikary et al., 2021; Akpan et al., 2020; Davis et al., 2022; Liébana-Cabanillas et al., 2020).

Literature Review

Privacy Orientation and Attitude and Intention to Learn with Mobile Technologies

The relationship between privacy orientation and attitude and intention to learn with mobile technologies is grounded in established theories such as the technology acceptance model, unified theory of acceptance and use of technology, and theory of planned behaviour. According to technology acceptance model, perceived usefulness and perceived ease of use are pivotal in shaping users' attitudes toward mobile technologies, which subsequently influence their behavioural intentions to adopt such technologies (Bali et al., 2024; F. Li et al., 2024). Privacy attitudes also play a significant role, as

concerns about personal data protection affect users' willingness to engage with mobile applications, thereby shaping their attitudes and intentions (Dogruel et al., 2023). Furthermore, the privacy paradox, which highlights discrepancies between users' stated privacy concerns and their actual behaviour, suggests that risk-benefit evaluations and perceived negligible risks significantly influence privacy-related decision-making in mobile contexts (Barth & de Jong, 2017). The inclusion of privacy orientation within the technology acceptance model offers a nuanced understanding of how these factors contribute to mobile learning engagement, underscoring the need for effective strategies to enhance user participation in mobile learning environments (Tarhini et al., 2024).

The unified theory of acceptance and use of technology further elucidates the relationships among privacy orientation and attitude and intention to learn with mobile technologies by incorporating factors such as perceived privacy protection and social influence. Research shows that privacy protection perceptions strongly influence behavioural intentions toward mobile applications, including educational tools (Yang et al., 2024). Attitudes toward technology usage act as a mediator, linking facilitating conditions and social influence to behavioural intention (Hou & Yu, 2023). The framework highlights how personalized and environmentally conscious strategies can increase user acceptance, suggesting that a robust privacy orientation enhances positive attitudes and intentions to adopt mobile learning technologies (Krouska et al., 2023). The unified theory of acceptance and use of technology thus provides a comprehensive lens through which to understand how privacy concerns and other factors interact to shape users' engagement with mobile learning applications (Bayaga & du Plessis, 2024; Zhu & Huang, 2023).

Similarly, the theory of planned behaviour sheds light on the interplay between privacy orientation and attitude and intention in mobile learning. Privacy attitudes impact users' intentions to share personal information in mobile applications, particularly in sensitive contexts like health apps, thereby influencing overall behavioural intentions (Dogruel et al., 2023). The theory of planned behaviour identifies attitudes, subjective norms, and perceived behavioural control as key determinants of behavioural intentions, with cross-cultural studies affirming their relevance in mobile learning environments (Hagger et al., 2022; S.-H. Lin et al., 2020). While perceived trust and value enhance positive attitudes, leading to greater intention to use mobile technologies, perceived behavioural control moderates the intention-behaviour link in certain contexts (Davis Le Brun et al., 2023). Integrating privacy orientation within the theory of planned behaviour offers a comprehensive perspective on how privacy concerns influence user intentions in mobile learning, highlighting the complex interplay of internal and external factors (Hameed et al., 2024).

Based on the components of privacy orientation and attitude and intention to learn with mobile technologies as well as evidence from the theories, the study proposes the following hypothesis:

H_1: Privacy orientation correlates with attitudes and intentions to learn with mobile technologies.

Emotional Intelligence and Attitude and Intention to Learn with Mobile Technologies

The relationship between emotional intelligence (EI) and the intention to learn using mobile technologies is grounded in the principles of the affective events theory, the theory of planned

behaviour, and the unified theory of acceptance and use of technology. According to affective events theory, daily events trigger emotional responses that influence behaviours, offering a framework to explore the connections between EI and attitudes toward mobile learning. Individuals with higher EI are better equipped to manage their emotions, which positively affects their anticipated emotions towards mobile learning, reinforcing their intention to engage with such technologies (Huang, 2022). Moreover, the interaction of positive and negative emotions, particularly in mobile health contexts, suggests that while negative emotions can impede technology use, positive emotions can facilitate it (Y. Li et al., 2019). Emotional regulation also plays a moderating role in learning outcomes, highlighting how effectively managing emotions can enhance the intention to learn with mobile technologies (Lopes et al., 2017).

The theory of planned behaviour further clarifies the connections between EI and the intention to learn with mobile technologies by examining the roles of attitude, subjective norms, and perceived behavioural control. Research suggests that individuals with higher EI tend to develop more favorable attitudes toward mobile learning technologies, as they can manage emotions more effectively and empathize with others, which enhances relatedness and autonomy in learning settings (Bali et al., 2024). Additionally, subjective norms, such as peer and educator influences, significantly shape learners' intentions to use mobile technologies (Liu & Wang, 2024). Perceived behavioural control also plays a pivotal role, as learners who perceive themselves as capable of using mobile technologies are more likely to intend to engage in mobile learning (Hagger et al., 2022; Hsu et al., 2023). Therefore, theory of planned behaviour illustrates how EI influences attitudes and intentions toward mobile learning by enhancing emotional, social, and behavioural factors.

The unified theory of acceptance and use of technology provides another perspective on the relationship between EI and attitudes and intentions to learn using mobile technologies. The unified theory of acceptance and use of technology posits that emotions directly influence technology acceptance, which, in turn, mediates engagement with mobile learning (X. Lin et al., 2024). Key constructs of the unified theory of acceptance and use of technology such as performance expectancy and facilitating conditions are essential in shaping attitudes and intentions toward mobile learning (Bayaga & du Plessis, 2024; Zhu & Huang, 2023). Emotional intelligence enhances self-efficacy and social influence, both of which are critical in fostering positive attitudes and intentions to adopt mobile learning technologies (Hou & Yu, 2023). Integrating EI within the unified theory of acceptance and use of technology offers a comprehensive understanding of how emotional factors shape learners' technology adoption behaviours, thereby improving engagement and learning outcomes.

Based on the dimensions of emotional intelligence and intention to learn with mobile technologies constructs as well as evidence from the theories, the study proposes the following hypothesis:

H_2: Emotional intelligence correlates with attitudes and intentions to learn with mobile technologies.

Privacy Orientation and Emotional Intelligence

The relationship between privacy orientation and emotional intelligence can be understood through the lens of meta-emotional intelligence, a construct introduced in 2023. Meta-emotional intelligence extends traditional models of emotional intelligence by integrating metacognitive and meta-emotional components, such as beliefs about emotions, self-assessment of emotional abilities, and emotional self-evaluation (D'Amico & Geraci, 2023). This framework underscores the influence of an individual's awareness and understanding of their emotional processes on broader behavioural tendencies, including privacy management. Individuals with heightened meta-emotional awareness are likely to exhibit more sophisticated privacy management strategies, as they possess greater capacity for recognizing and regulating their emotional responses to privacy-related issues (Fiori et al., 2023). Consequently, the nuanced interaction between emotional regulation and privacy behaviour highlights the role of meta-emotional intelligence in shaping interpersonal boundaries and decision-making in privacy contexts.

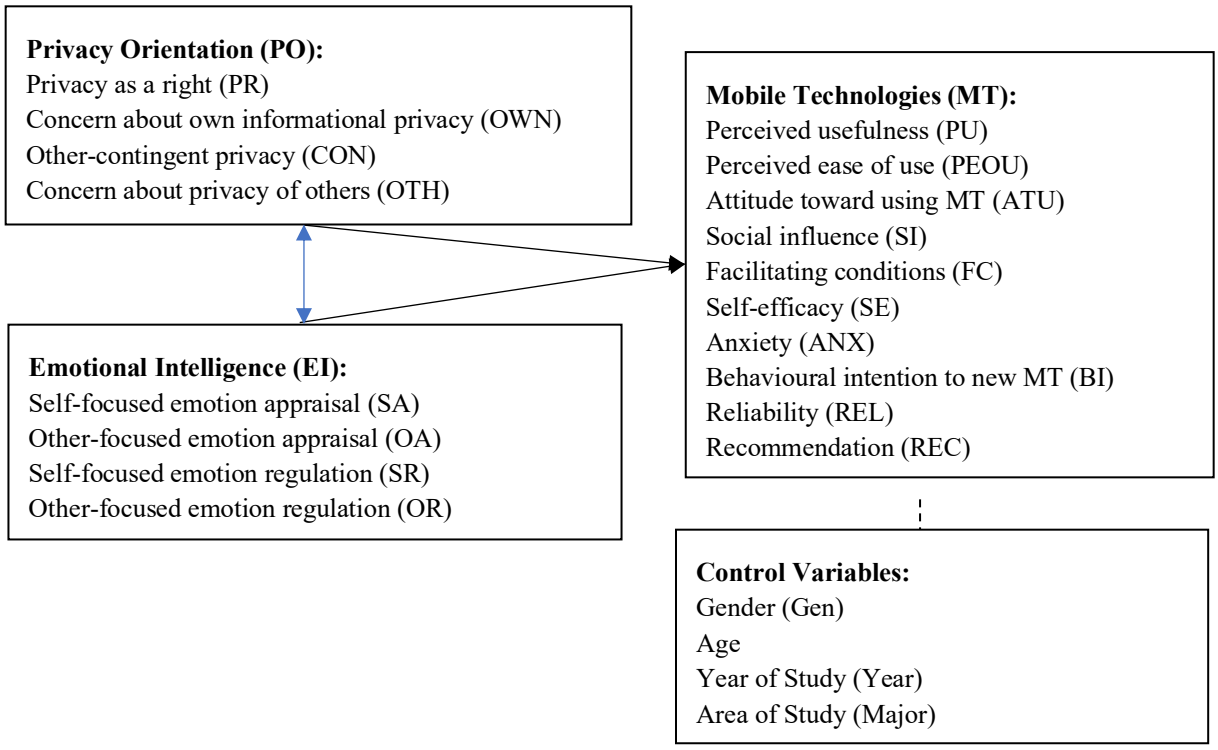
Based on the results of previous studies and the assumptions underlying the structures of privacy orientation and emotional intelligence, the study proposes the following hypothesis:

H_3: Emotional intelligence correlates with privacy orientation

Figure 1 presents the hypothesized research model, illustrating the key variables and their proposed relationships.

Figure 1

Hypothesized Research Model



Methodology

This study adopted a multidimensional construct that was conceptualized by Briz et al. (2016) to assess the attitude and intention to learn with mobile technologies: perceived usefulness of technology, perceived ease of use of technology, attitude toward using technology, external or social influence and support to use or in the usage of technologies, facilitating conditions or available resources to use technologies, self-efficacy or ability to complete tasks with new technology, anxiety or apprehension of using technology, behavioural intention to use new technology in the coming future, reliability or necessity of quality certification for apps, and recommendation to use technologies. Sample item to assess the attitude and intention to learn with mobile technologies includes "Using new mobile technologies and applications/programs is a good idea".

This study used a four-dimensional privacy orientation construct developed by Baruh and Cemalcilar (2014) that includes privacy as a right, concern about own information privacy, other-contingent privacy, and concern about privacy of others. Sample item to assess privacy orientation includes "If somebody is not careful about protecting their own privacy, I cannot trust them about respecting mine".

This study followed Pekaar's et al. (2018) four-dimensional Rotterdam Emotional Intelligence Scale (REIS) that combines self-focused emotion appraisal, other-focused emotion appraisal, self-focused emotion regulation, and other-focused emotion regulation. Sample items to assess emotional intelligence includes "I understand why I feel the way I feel".

Data were collected from undergraduate students studying at universities in Kazakhstan. The study took several steps to enhance the reliability and validity of the survey constructs and the study's results. Since the questionnaire items were derived from previous research, they underwent translation and back-translation from English to native Kazakh to ensure clear comprehension of the questionnaire (Kowal, 2024). To mitigate response bias, participants were guaranteed the confidentiality and anonymity of their responses. This guarantee served to deter inaccurate responses and desirable answers from the participants (Ried et al., 2022). The study utilized a convenience sampling approach, which is recognized as a suitable method for enhancing data reliability and validity in known and homogeneous populations (Creswell & Creswell, 2022). All the constructs were measured on a 6-point Likert-type scale ranging from 1 = strongly disagree to 6 = strongly agree.

Results and Analysis

Participants

A total of 272 valid responses were analyzed, with participants aged 18 to 23. The majority (43%) were in their senior year of study, and the most represented fields were finance (29%), accounting (20%), marketing (18%), and management (13%).

The recruitment process primarily resulted in a significant proportion of participants majoring in business specializations due to their accessibility and the relevance of the study's focus on privacy and

emotional intelligence in technology-based learning to business-related fields. To broaden the diversity of the sample, students registered in courses taught by the authors were provided with several copies of the questionnaire and requested to distribute them among acquaintances from other universities, different academic specializations, and various cities and rural areas of Kazakhstan. This approach facilitated the inclusion of participants outside the authors' immediate academic environment and ensured a wider representation across geographical and disciplinary contexts.

Table 1

Demographic Profile

Variable	Grouping	Participants	%
Gender	Female	141	52
	Male	131	48
Age	≤ 18	27	10
	19	63	23
	20	57	21
	21	63	23
	22	41	15
	≥ 23	21	8
Year of study	Freshmen	16	6
	Sophomore	65	24
	Junior	75	28
	Senior	116	43
Area of study	Accounting	55	20
	Finance	79	29
	Management	35	13
	Marketing	49	18
	International relations	16	6
	Law	16	6
	Others	22	8

Reliability and Validity of the Survey Constructs

Table 2 provides descriptive statistics, indicating that all mean values exceeded 4.00, except for anxiety (M = 3.12) and concern about own informational privacy (M = 3.99). Standard deviations ranged from 0.84 to 1.23, showing narrow variability. Most dimensions exhibited skewness between -

0.5 and 0.5, implying symmetry, with moderate skewness in a few dimensions like perceived usefulness and reliability. Kurtosis values below 3 suggest a flatter distribution with few outliers.

Table 2

Descriptive Statistics

Construct	Mean	SD	Skewness	Kurtosis
Perceived usefulness	4.79	1.10	-1.191	1.172
Perceived ease of use	4.44	1.10	-0.539	0.089
Attitude toward using mobile technologies	4.54	0.97	-0.204	-0.487
Social influence	4.08	0.84	-0.039	0.035
Facilitating conditions	4.24	0.87	-0.471	0.216
Self-efficacy	4.31	1.01	-0.516	-0.046
Anxiety	3.12	1.15	-0.124	-0.618
Behavioural intention to use new mobile technologies	4.57	0.97	-0.267	-0.612
Reliability	4.37	1.23	-1.027	1.449
Recommendation	4.60	1.08	-0.770	0.615
Privacy as a right	4.68	1.04	-1.032	1.304
Concern about own informational privacy	3.99	1.02	-0.232	0.049
Other-contingent privacy	4.07	1.00	-0.189	-0.344
Concern about privacy of others	4.67	0.89	-0.636	0.177
Self-focused emotion appraisal	4.32	1.04	-0.547	0.074
Other-focused emotion appraisal	4.15	0.99	-0.541	0.640
Self-focused emotion regulation	4.00	1.00	-0.365	-0.110
Other-focused emotion regulation	4.04	0.95	-0.316	0.297

Table 3 reports Cronbach's alpha, composite reliability, and average variance extracted (AVE). Most constructs met the reliability thresholds (Cronbach's $\alpha > 0.7$, composite reliability > 0.6, AVE > 0.5). Notably, constructs like social influence and anxiety fell slightly below ideal thresholds, but values were acceptable for exploratory research (Creswell & Creswell, 2022).

Table 3

Construct Values

Construct	Number of items	Cronbach's α	Composite reliability	Average variance extracted
Perceived usefulness	3	.845	.858	.675
Perceived ease of use	3	.861	.863	.678
Attitude toward using	4	.851	.852	.590
Social influence	4	.650	.592	.294
Facilitating conditions	4	.685	.692	.364
Self-efficacy	3	.800	.814	.596
Anxiety	3	.688	.691	.430
Behavioural intention to use	3	.588	.736	.531
Privacy as a right	3	.869	.877	.706
Concern about own privacy	4	.772	.780	.473
Other-contingent privacy	4	.771	.779	.472
Concern about privacy of others	5	.850	.853	.539
Self-focused emotion appraisal	7	.922	.926	.646
Other-focused emotion appraisal	7	.900	.901	.568
Self-focused emotion regulation	7	.870	.871	.492
Other-focused emotion regulation	7	.884	.884	.523

Considering these findings, Table 4 delves deeper into the item-total statistics for the four dimensions: social influence, facilitating conditions, anxiety, and behavioural intention to adopt new mobile technologies. The analysis reveals that removing social influence item 4 increases its Cronbach's alpha from 0.650 to 0.707, indicating improved reliability. In contrast, eliminating items from the facilitating conditions or anxiety dimensions results in decreased Cronbach's alpha values. However, deleting behavioural intention item 3 significantly raises its Cronbach's alpha from 0.588 to 0.843. Therefore, based on item-total statistics, social influence item 4 and behavioural intention item 3 were removed to improve reliability.

Table 4

Item-Total Statistics

Construct and scale item	Cronbach's α if item deleted			
	Item 1	Item 2	Item 3	Item 4
Social influence	.482	.505	.582	.707
Facilitating conditions	.631	.618	.657	.571
Anxiety	.627	.614	.542	
Behavioural intention to use	.380	.260	.843	

Correlation Analysis

A bivariate Pearson correlation analysis was conducted using SPSS to assess the relationships among privacy orientation, emotional intelligence, and attitudes and intentions to learn with mobile technologies. The results are presented in Table 5.

Hypothesis 1 posited that privacy orientation would correlate with attitudes and intentions to learn with mobile technologies. As shown in Table 5, all dimensions of privacy orientation, except for concern about own informational privacy, exhibited statistically significant positive correlations with most dimensions of attitudes and intentions to learn with mobile technologies, except for anxiety.

Hypothesis 2 proposed a correlation between emotional intelligence and attitudes and intentions to learn with mobile technologies. The results confirmed that all dimensions of emotional intelligence were significantly positively correlated with attitudes and intentions to learn with mobile technologies. The only exception was the relationship between self-focused emotion appraisal and reliability, which did not exhibit a statistically significant correlation.

Hypothesis 3 suggested that privacy orientation would correlate with emotional intelligence. Table 5 indicates that, except for concern about own informational privacy, all dimensions of privacy orientation had statistically significant positive correlations with all dimensions of emotional intelligence.

The analysis revealed that males demonstrated higher levels of self-focused emotion appraisal and self-focused emotion regulation than females, as evidenced by significant positive correlations between gender and these dimensions of emotional intelligence. Additionally, males reported significantly higher levels of perceived ease of use and self-efficacy with respect to computer technologies compared to females, suggesting greater confidence and ease in technology use. In contrast, females reported significantly higher levels of anxiety associated with using computer technologies.

Age also demonstrated significant positive correlations with concern about own informational privacy and attitudes toward using computer technologies, suggesting that as individuals age, their

attitudes toward technology become more positive, although they simultaneously develop greater sensitivity toward privacy concerns. Similarly, the year of study showed a positive correlation with attitudes toward using computer technologies, further supporting the trend of more favorable attitudes toward technology with increasing age and experience.

Table 5

Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12
5	-.01	.04	-.03	.09								
6	.05	.18**	.09	.08								
7	-.08	.05	-.04	.14*								
8	-.10	-.02	-.05	.10								
9	.22**	.08	.09	.10	.32**	.09	.12*	.35**				
10	.02	.03	.03	.12*	.32**	.03	.18**	.41**				
11	.21**	.01	-.01	.09	.23**	.17**	.15*	.24**				
12	.09	.06	.02	.07	.28**	.09	.21**	.28**				
13	.03	.07	.06	.06	.41**	.08	.16**	.43**	.37**	.35**	.29**	.31**
14	.20**	.07	.01	.01	.26**	.05	.14*	.28**	.34**	.36**	.26**	.39**
15	.08	.15*	.15*	.08	.31**	.05	.17**	.31**	.31**	.36**	.27**	.33**
16	.06	.07	.04	.01	.22**	.05	.19**	.20**	.23**	.20**	.16**	.23**
17	.15*	.05	-.04	.06	.33**	.09	.17**	.32**	.39**	.34**	.26**	.43**
18	.18**	.03	-.01	.08	.26**	.07	.14*	.30**	.27**	.29**	.27**	.37**
19	-.21**	-.09	-.05	.07	-.09	.23**	.18**	-.07	-.17**	-.2**	-.15*	-.18**
20	-.01	.02	.04	-.04	.31**	-.08	.02	.37**	.21**	.40**	.21**	.29**
21	.05	-.05	-.04	.02	.23**	.12	.12*	.20**	.08	.14*	.13*	.18**
22	.11	.07	.10	.10	.32**	.01	.17**	.39**	.28**	.33**	.21**	.24**

Note. *. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed). Variables: 1: Gender, 2: Age, 3: Year of study, 4: Academic major, 5: Privacy as a right, 6: Concern about own informational privacy, 7: Other-contingent privacy, 8: Concern about privacy of others, 9: Self-focused emotion appraisal, 10: Other-focused emotion appraisal, 11: Self-focused emotion regulation, 12: Other-focused emotion regulation, 13: Perceived usefulness, 14: Perceived ease of use, 15: Attitude toward using mobile technologies, 16: Social influence, 17: Facilitating conditions, 18: Self-efficacy, 19: Anxiety, 20: Behavioural intention to use new mobile technologies, 21: Reliability, 22: Recommendation.

Multiple Regression Analysis

To examine the effect of privacy orientation and emotional intelligence on attitudes and intentions to learn with mobile technologies, a series of multiple regressions were conducted on ten dimensions of these attitudes and intentions.

First, each dimension of attitudes and intentions to learn with mobile technologies was regressed on the four dimensions of privacy orientation (Models A; see Tables 6A–6E). Second, each dimension was regressed on the four dimensions of emotional intelligence (Models B). Third, each dimension was regressed on both privacy orientation and emotional intelligence simultaneously (Models C).

The F-statistics for Models A, B, and C indicated that all models were statistically significant, suggesting that they explained a significant proportion of variance in the dependent variables. Additionally, the adjusted R^2 values for Model C were consistently higher than those for Models A and B. This finding suggests that the combined model (Model C), which includes both privacy orientation and emotional intelligence, explains more variation in attitudes and intentions to learn with mobile technologies than models that include only privacy orientation or emotional intelligence alone.

For instance, as Table 6A shows privacy as a right and concern about the privacy of others from privacy orientation, as well as self-focused emotion appraisal and other-focused emotion regulation from emotional intelligence, were significant predictors of perceived usefulness in Model C. The adjusted R^2 for this model was 0.269, indicating that 26.9% of the variance in perceived usefulness could be explained by privacy orientation and emotional intelligence.

Additionally, Table 6B demonstrates that privacy orientation, specifically privacy as a right and other-contingent privacy, along with emotional intelligence (specifically other-focused emotion appraisal), significantly influenced attitudes toward using mobile technologies in Model C. These results suggest that both privacy concerns and emotional intelligence are critical factors in shaping attitudes toward mobile technologies.

In summary, these results indicate that privacy orientation and emotional intelligence, when considered together, provide a more comprehensive explanation of attitudes and intentions to learn with mobile technologies than when either factor is considered alone. The combined models explain a larger proportion of the variance, demonstrating the complex interplay between emotional intelligence, privacy concerns, and technology adoption behaviours.

Table 6A

Regression of Perceived Usefulness and Perceived Ease of Use on Privacy Orientation and Emotional Intelligence

Variable	Perceived usefulness			Perceived ease of use		
PO	Model A	Model B	Model C	Model A	Model B	Model C
PR	.267***		.207***	.151**		.064

Variable	Perceived usefulness			Perceived ease of use		
PO	Model A	Model B	Model C	Model A	Model B	Model C
OWN	-.014		-.014	-.037		-.028
CON	-.019		-.027	.046		.020
OTH	.297***		.210***	.193***		.081
EI						
SA		.220***	.136**		.182***	.153**
OA		.191***	.093		.142**	.102
SR		.074	.063		.039	.036
OR		.088	.070		.220***	.212***
Adj R²	*.220*	*.185*	*.269*	*.083*	*.195*	*.196*
F-stat	*20.087****	*16.354****	*13.467****	*7.172****	*17.444****	*9.272****

Note. Levels of significance for Tables 6A – 6E: ** significant at the 0.05; *** significant at the 0.01; Abbreviations used in Tables 6A – 6E: *PO – Privacy Orientation:* PR – Privacy as a right, OWN – Concern about own informational privacy, CON – Other-contingent privacy, OTH – Concern about privacy of others; *EI – Emotional Intelligence:* SA - Self-focused emotion appraisal, OA – Other-focused emotion appraisal, SR – Self-focused emotion regulation, OR – Other-focused emotion regulation.

Table 6B

Regression of Attitude Toward Using Mobile Technologies and Social Influence on Privacy Orientation and Emotional Intelligence

Variable	Attitude toward using			Social influence		
PO	Model A	Model B	Model C	Model A	Model B	Model C
PR	.197***		.128*	.149**		.102
OWN	-.060		-.055	-.091		-.091
CON	.070		.051	.170**		.161**
OTH	.197***		.096	.082		.028
EI						
SA		.132*	.087		.145**	.120
OA		.208***	.148**		.053	.006
SR		.092	.089		.009	.007
OR		.121*	.105		.145*	.120

Variable	Attitude toward using			Social influence		
PO	Model A	Model B	Model C	Model A	Model B	Model C
Adj R²	*.117*	*.168*	*.189*	*.064*	*.065*	*.085*
F-stat	*9.995****	*14.667****	*8.915****	*5.633****	*5.674****	*4.164****

Note. Abbreviations used in Tables 6A – 6E: *PO – Privacy Orientation:* PR – Privacy as a right, OWN – Concern about own informational privacy, CON – Other-contingent privacy, OTH – Concern about privacy of others; *EI – Emotional Intelligence:* SA - Self-focused emotion appraisal, OA – Other-focused emotion appraisal, SR – Self-focused emotion regulation, OR – Other-focused emotion regulation.

Table 6C

Regression of Facilitating Conditions and Self-Efficacy on Privacy Orientation and Emotional Intelligence

Variable	Facilitating conditions			Self-Efficacy		
PO	Model A	Model B	Model C	Model A	Model B	Model C
PR	.227***		.136**	.148**		.082
OWN	-.008		.000	-.009		-.012
CON	.032		.008	.025		-.001
OTH	.194***		.094	.214***		.141**
EI						
SA		.264***	.218***		.099	.054
OA		.058	.005		.072	.014
SR		-.018	-.027		.100	.094
OR		.304***	.289***		.250***	.241***
Adj R²	*.130*	*.238*	*.259*	*.091*	*.154*	*.170*
F-stat	*11.089****	*22.133*	*12.857****	*7.792****	*13.340****	*7.953****

Note. Abbreviations used in Tables 6A – 6E: *PO – Privacy Orientation:* PR – Privacy as a right, OWN – Concern about own informational privacy, CON – Other-contingent privacy, OTH – Concern about privacy of others; *EI – Emotional Intelligence:* SA - Self-focused emotion appraisal, OA – Other-focused emotion appraisal, SR – Self-focused emotion regulation, OR – Other-focused emotion regulation.

Table 6D

Regression of Anxiety and Behavioural Intention to Use New Mobile Technologies on Privacy Orientation and Emotional Intelligence

Variable	Anxiety			Behavioural intention		
PO	Model A	Model B	Model C	Model A	Model B	Model C
PR	-.144**		-.090	.211***		.164**
OWN	.199***		.198***	-.126*		-.107
CON	.140*		.155**	-.073		-.103
OTH	-.066		.011	.300***		.217***
EI						
SA		-.078	-.065		.017	-.058
OA		-.107	-.095		.329***	.237***
SR		-.046	-.084		.074	.083
OR		-.074	-.098		.062	.064
Adj R^2	*.075*	*.040*	*.115*	*.170*	*.154*	*.230*
F-stat	*6.479****	*3.855****	*5.417****	*14.898****	*13.374****	*11.098****

Note. Abbreviations used in Tables 6A – 6E: *PO – Privacy Orientation:* PR – Privacy as a right, OWN – Concern about own informational privacy, CON – Other-contingent privacy, OTH – Concern about privacy of others; *EI – Emotional Intelligence:* SA - Self-focused emotion appraisal, OA – Other-focused emotion appraisal, SR – Self-focused emotion regulation, OR – Other-focused emotion regulation.

Table 6E

Regression of Reliability and Recommendation on Privacy Orientation and Emotional Intelligence

Variable	Reliability			Recommendation		
PO	Model A	Model B	Model C	Model A	Model B	Model C
PR	.163**		.152**	.172***		.129**
OWN	.064		.063	-.118*		-.112*
CON	-.003		-.018	.085		.078
OTH	.107		.101	.291***		.218***
EI						
SA		-.032	-.084		.151**	.082

Variable		Reliability			Recommendation	
PO	Model A	Model B	Model C	Model A	Model B	Model C
OA		.051	.000		.236***	.133*
SR		.079	.061		.047	.046
OR		.128*	.110		.025	.008
Adj R^2	*.052*	*.023*	*.053*	*.169*	*.122*	*.192*
F-stat	*4.694****	*2.562***	*2.891****	*14.789****	*10.385****	*9.032****

Note. Abbreviations used in Tables 6A – 6E: *PO – Privacy Orientation:* PR – Privacy as a right, OWN – Concern about own informational privacy, CON – Other-contingent privacy, OTH – Concern about privacy of others; *EI – Emotional Intelligence:* SA - Self-focused emotion appraisal, OA – Other-focused emotion appraisal, SR – Self-focused emotion regulation, OR – Other-focused emotion regulation.

Structural Equation Model Analysis

The structural equation model was constructed using R software to investigate the relationships among various dimensions influencing attitudes and intentions regarding learning with mobile technologies. The endogenous (dependent) variables consisted of these dimensions, while the exogenous (independent) variables included privacy orientation and emotional intelligence, both of which demonstrated statistically significant correlation coefficients with the dependent variables. The model was specified based on established theoretical frameworks and previous research findings. The assessment of the model's goodness-of-fit revealed robust results: Comparative Fit Index (CFI) = 0.995, Root Mean Square Error of Approximation (RMSEA) = 0.039, and p-value = 0.014. CFI values of 0.900 and 0.950 indicate adequate and excellent fit, respectively (Creswell & Creswell, 2022), suggesting that the model effectively represents the data. Additionally, RMSEA values of 0.01, 0.05, and 0.08 correspond to excellent, good, and mediocre fit, respectively (Creswell & Creswell, 2022). In this context, a p-value less than 0.050 is considered statistically significant, while a p-value below 0.010 is classified as highly statistically significant. These findings provide valuable insights into the dynamics of attitudes and intentions toward mobile technology learning, contributing to the broader understanding of educational technology adoption.

Discussion and Conclusion

This research study investigated the relationships among attitudes and intentions to learn with mobile technologies, privacy orientation, and emotional intelligence among emerging adults in Kazakhstan. The results indicated a positive correlation between attitudes and intentions to learn with mobile technologies, privacy orientation (except for the dimension concern about own informational privacy), and emotional intelligence. Furthermore, the variability in attitudes and intentions to learn with mobile technologies was more effectively explained by incorporating both privacy orientation and emotional intelligence in the regression analysis, rather than considering each factor independently. This

suggests that (1) emotional intelligence significantly influences privacy orientation as well as attitudes and intentions toward learning with mobile technologies, and (2) privacy orientation is a critical determinant of positive attitudes and intentions toward mobile technology learning.

Demographic characteristics findings revealed that, on average, (1) males demonstrate greater proficiency in self-focused emotional appraisal and regulation than females; (2) males exhibit higher levels of ease and confidence in utilizing computer technologies compared to their female counterparts; (3) females experience greater anxiety when using computer technologies than males; and (4) as individuals age, their attitudes toward computer technologies tend to become more positive, although they also exhibit increased sensitivity to privacy concerns regarding their information.

It is important to note that the study focused specifically on post-secondary education, where mobile learning technologies are increasingly adopted but not yet uniformly integrated across institutions in Kazakhstan. While many students who participated in the study were already users of mobile technologies in their education, the degree of adoption varies significantly depending on the university and its resources. This variability may contribute to some of the anxiety reported by students, particularly females, suggesting that earlier exposure to technology and digital literacy—starting from primary or secondary education—could help reduce apprehension and enhance confidence. As Kazakhstan continues to develop its digital infrastructure, a comprehensive understanding of the local population's attitudes toward technology use and privacy is crucial for informing both academic research and practical applications in policy and business.

Theoretical Implications

This study advances the theoretical understanding of technology adoption by integrating emotional intelligence and privacy orientation into established frameworks like the unified theory of acceptance and use of technology and the technology acceptance model. By investigating these constructs within Kazakhstan, the study expands the cross-cultural applicability of these frameworks. The inclusion of emotional intelligence as a critical factor in technology adoption highlights the need to consider not only cognitive factors but also emotional and psychological drivers of technology acceptance. Emotional intelligence influences user confidence, stress management, and overall engagement with technology, suggesting that traditional models of technology acceptance need to account for the emotional readiness of users.

Moreover, the study provides a nuanced understanding of privacy orientation by demonstrating its multidimensional impact on mobile learning attitudes. Unlike previous research focused on Western economies, this study shows how privacy concerns are perceived in a transitional economy, which could affect the trust and willingness to adopt technology. By revealing that emotional intelligence and privacy orientation together explain user attitudes and intentions more effectively, the study calls for the refinement of existing models to include these emotional and privacy-related dimensions, especially in non-Western, rapidly evolving economic contexts.

However, caution is needed in interpreting the findings, as they are specific to a transitional economy with unique sociocultural and technological conditions that may not fully generalize to other

contexts. While the findings offer valuable theoretical contributions to non-Western economies and economies in transition, future research is encouraged to explore these relationships across diverse regions and economic settings to validate and refine these insights further. This will ensure a broader applicability of the proposed refinements to global technology adoption behaviour.

Limitations

It is important to acknowledge that the use of cross-sectional data and the convenience sampling method may have introduced potential limitations to the study. The reliance on university students as participants may not fully represent the broader population, as their attitudes and behaviours toward mobile technologies and privacy concerns might differ from those of working professionals or individuals in rural areas. Future research should aim to collect longitudinal data and explore these relationships in more diverse populations to capture changes over time and provide a more comprehensive understanding of the findings' applicability. These improvements will enhance the study's credibility and relevance, making the recommendations more impactful for the field.

Practical Implications

This study provides actionable insights for educational institutions, policymakers, and technology developers in Kazakhstan and similar transitioning economies. The findings suggest that improving emotional intelligence and addressing privacy concerns can enhance technology adoption and mobile learning. Educational institutions should integrate emotional intelligence training into digital literacy programs to help students manage stress and improve their confidence in using mobile technologies. Tailoring these programs to reduce technology-related anxiety, especially among female students, can boost engagement and learning outcomes.

For policymakers, the research highlights the importance of developing robust privacy protection policies that build trust in digital platforms. Clear, user-centric privacy guidelines are critical for increasing users' willingness to engage with mobile technologies, particularly in educational settings. Additionally, incorporating emotional intelligence into policy frameworks can create more personalized approaches to technology adoption, improving user experience and fostering long-term engagement.

For technology developers, this study emphasizes the need to design mobile applications that prioritize both emotional user support and strong privacy safeguards. Applications that consider users' emotional and privacy needs will likely see higher adoption rates, especially in economies experiencing rapid technological shifts. These insights can inform the creation of more effective, user-friendly digital learning environments.

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