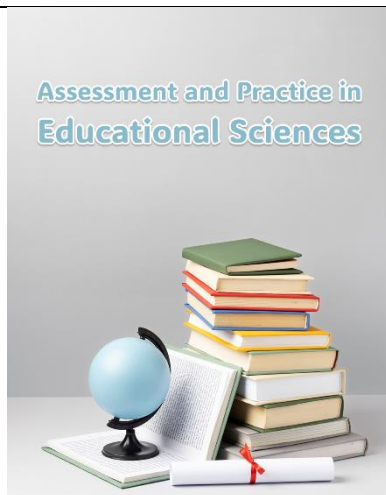




© 2027 the authors. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

1. Mahvash. Mirzaii^{ID}: Department of Educational Sciences, Bu.C., Islamic Azad University, Bushehr, Iran

2. Mohamad. Behroozi^{ID}: Department of Educational Sciences, B u.C., Islamic Azad University, Bushehr, Iran (Email: f.mahini80@iau.ac.ir)

3. Fakhte. Mahini^{ID}: Department of Educational Sciences, B u.C., Islamic Azad University, Bushehr, Iran

4. Mohamad. Kargar^{ID}: Department of Educational Sciences, Bu.C., Islamic Azad University, Bushehr, Iran

Article type:
Original Research

Article history:
Received 20 May 2026
Revised 17 August 2026
Accepted 26 August 2026
Initial Publish 19 October 2026
Published online 01 March 2027

How to cite this article:

Mirzaii, M., Behroozi, M., Mahini, F., & Kargar, M. (2027). Perceived School Leadership and EFL Teacher Outcomes in Tehran: An Explanatory Sequential Mixed-Methods Study. *Assessment and Practice in Educational Sciences*, 5(2), 1-16. <https://doi.org/10.61838/japes.311>

Designing and Validating a Curriculum Model Based on Enhancing Academic Adjustment, Academic Self-Efficacy, and Academic Achievement Motivation among Upper Secondary School Students in Bushehr County

ABSTRACT

The present study aimed to design and validate a curriculum model for improving and enhancing academic adjustment, academic self-efficacy, and academic achievement motivation among upper secondary school students in Bushehr Province. The study employed an exploratory sequential mixed-methods design (qualitative–quantitative). In the qualitative phase, grounded theory and the systematic approach of Strauss and Corbin were employed. Fifteen in-depth semi-structured interviews were conducted with experts—including curriculum planning faculty members, educational psychologists, and experienced teachers—selected through snowball sampling. The qualitative data were analyzed through open, axial, and selective coding using ATLAS.ti software. In the quantitative phase, the statistical population consisted of all 980 female students in the experimental sciences track at upper secondary schools in Bushehr Province. Based on Cochran's sample-size formula, 305 students were selected through multistage cluster random sampling, of whom 280 returned acceptable questionnaires. The qualitative findings resulted in the identification of 241 open codes, 18 main components, and six overarching dimensions: causal conditions, the central phenomenon (an empowering curriculum), contextual conditions, intervening conditions, strategies, and consequences. The final model explained 64% of the variance in academic self-efficacy and 83% of the variance in academic achievement motivation. The proposed model was developed within the framework of Tyler's five fundamental questions: (1) objectives, encompassing the enhancement of the three dimensions of adjustment, self-efficacy, and achievement motivation; (2) content, consisting of interconnected and spiral concepts emphasizing applicability and localization; (3) teaching–learning methods, including active teaching, peer learning, project-based learning, and group discussion; (4) assessment, including formative assessment, self-assessment, descriptive feedback, and performance-based assessment; and (5) revision, including mechanisms for obtaining continuous feedback from stakeholders. The curriculum model developed in this study demonstrated satisfactory validity and model fit and can be used as an effective framework for improving academic adjustment, academic self-efficacy, and academic achievement motivation among upper secondary school students.

Keywords: curriculum model, academic adjustment, academic self-efficacy, academic achievement motivation, upper secondary education

Introduction

Upper secondary education represents a decisive stage in students' academic, psychological, and social development. During this period, students must respond simultaneously to increasingly complex curricular requirements, decisions concerning their future educational and occupational pathways, changing interpersonal relationships, and heightened expectations from families, teachers, and educational institutions. Successful progression through this stage therefore depends not only on students' cognitive abilities but also on their capacity to adjust to the school environment, believe in their ability to perform academic tasks, and sustain the motivation required to pursue demanding educational goals. When curricula focus predominantly on transmitting disciplinary knowledge while neglecting these psychological and adaptive capacities, students may possess adequate intellectual potential but remain unable to engage consistently, manage academic difficulties, or convert learning opportunities into meaningful achievement. Accordingly, contemporary curriculum planning increasingly recognizes that academic adjustment, academic self-efficacy, and academic achievement motivation should be treated as interrelated educational outcomes rather than as peripheral characteristics located outside the formal curriculum.

A curriculum is more than a prescribed collection of subjects, textbooks, and instructional hours. It is an organized educational framework through which objectives, content, teaching–learning activities, assessment practices, relationships, institutional values, and learner experiences are brought together. International comparisons of pedagogy demonstrate that learning outcomes are shaped by the interaction of cultural expectations, classroom discourse, teacher practices, and the organization of educational experiences; consequently, curriculum models must be responsive to the social and cultural contexts in which learning occurs (1). Curriculum development in Iran similarly requires systematic attention to contextual needs, learner characteristics, national educational priorities, and the relationship between intended, implemented, and attained curricula (2). A curriculum intended for upper secondary students in Bushehr Province should therefore address both nationally defined educational expectations and the particular psychological, social, and educational circumstances experienced by students within the local context.

The need for context-sensitive curriculum design is especially important because centralized or uniformly prescribed curricula may not fully accommodate differences among schools, communities, teachers, and learners. A semi-centralized curriculum can establish coherence with national standards while simultaneously allowing sufficient flexibility for local adaptation, school-level decision-making, and responsiveness to learners' needs. Research on a semi-centralized curriculum model aligned with Iran's National Curriculum has emphasized the importance of coordinating curriculum components with national principles while preserving an appropriate degree of flexibility in implementation (3). Likewise, the development and validation of an indigenous critical literacy curriculum model for upper secondary education has shown that locally grounded curricular objectives, content, teaching strategies, and assessment procedures can be systematically identified and empirically validated (4). These findings indicate that a curriculum model designed to enhance psychological and educational capacities should not merely reproduce generalized recommendations; it should translate them into coherent and culturally relevant curricular elements.

Academic adjustment is one of the principal conditions for successful participation in school. It refers to students' capacity to respond effectively to academic demands, comply with relevant institutional expectations, establish constructive relationships, participate in learning activities, regulate their behavior, use available resources, and maintain a sense of belonging to the educational environment. Academic adjustment is multidimensional because it incorporates cognitive, emotional, behavioral, interpersonal, and institutional forms of adaptation. Students who adjust effectively are more likely to establish realistic educational goals, use adaptive strategies when facing academic problems, communicate with teachers and

peers, and continue their educational activities despite temporary setbacks. In contrast, maladjustment may be manifested through disengagement, avoidance of challenging tasks, weak attachment to school, interpersonal conflict, noncompliance with educational expectations, and declining performance.

School adjustment develops through continuous interaction between personal resources and environmental conditions. Teacher–student relationships are particularly influential because supportive relationships can provide emotional security, constructive feedback, and opportunities for students to interpret difficulties as manageable rather than threatening. Evidence indicates that the teacher–student relationship contributes to school adjustment and that resilience can mediate this relationship, highlighting the importance of simultaneously strengthening interpersonal support and students’ adaptive resources (5). More broadly, psychosocial conditions and peer and school environments are associated with adolescents’ behavioral choices and adjustment patterns, demonstrating that adolescent development cannot be explained solely through individual characteristics (6). Thus, curriculum design should create educational experiences that promote communication, cooperation, resilience, responsible decision-making, and constructive participation in school life.

Research conducted within educational settings also suggests that adjustment can be purposefully improved through curricular intervention. A social adjustment curriculum has been shown to influence academic buoyancy, academic identity, and cognitive flexibility among female students, indicating that adjustment-oriented content and learning experiences may have effects extending beyond social behavior alone (7). Similarly, a balanced spiritual education curriculum has been associated with students’ spiritual identity and social adjustment, further demonstrating that appropriately organized curricular experiences can contribute to students’ adaptation and identity development (8). These findings support the view that adjustment is not a fixed personal disposition. Rather, it is an educationally malleable capacity that can be strengthened through explicit objectives, relevant content, participatory teaching strategies, supportive relationships, and appropriate feedback.

The second central construct is academic self-efficacy, which refers to students’ beliefs concerning their capability to organize and perform the actions required to accomplish academic tasks. Self-efficacy does not merely represent a general sense of confidence; it is a judgment of capability related to specific demands, situations, and domains of action. Within social cognitive theory, human functioning is explained through reciprocal interactions among personal factors, behavior, and environmental influences (9). From this perspective, students are not passive recipients of curricular conditions. Their beliefs influence the goals they establish, the effort they invest, the strategies they select, and the extent to which they persist when confronted with difficulty. At the same time, educational environments shape these beliefs through mastery experiences, observation of competent models, social persuasion, and interpretations of emotional and physiological states.

Self-efficacy is therefore central to students’ agency and self-regulation. Individuals with strong efficacy beliefs are more likely to select challenging goals, sustain effort, recover after failure, and interpret difficulties as problems that can be addressed. Students with weak efficacy beliefs may avoid demanding tasks, reduce their effort when obstacles arise, and interpret temporary failure as evidence of limited ability. The exercise of personal control through efficacy beliefs consequently provides an important foundation for motivation, persistence, and performance (10). Social cognitive theory further clarifies how self-efficacy operates within systems of reciprocal causation and how learning environments can be organized to promote observational learning, goal-directed behavior, and perceived competence (11). A curriculum designed to enhance academic self-efficacy must therefore provide progressive mastery experiences, realistic challenges, meaningful choices, constructive feedback, peer modeling, and opportunities for students to monitor their improvement.

Empirical evidence supports the close relationship between self-efficacy and academic development. Longitudinal research on mathematics has shown reciprocal relationships among self-concept, self-efficacy, and achievement, suggesting that positive competence beliefs can support achievement while successful performance can, in turn, strengthen these beliefs (12). This

reciprocal pattern is important for curriculum planning because repeated learning experiences may initiate either an adaptive cycle of mastery, confidence, and engagement or a maladaptive cycle of difficulty, low efficacy, and withdrawal. Curriculum quality has also been associated with academic engagement through the mediating role of psychological self-efficacy, indicating that well-designed curricular experiences may promote engagement partly by strengthening students' beliefs in their capabilities (13). Consequently, self-efficacy should be considered both an educational outcome and a psychological mechanism through which curriculum quality influences students' participation.

Curriculum-related evidence further demonstrates that self-efficacy is influenced by both formal and informal educational experiences. The implemented curriculum has been found to affect the professional self-efficacy of student teachers, illustrating that what learners actually experience in educational settings may be as consequential as the formally intended curriculum (14). Curriculum components have also been associated with entrepreneurial self-efficacy among applied-science students, demonstrating that objectives, content, instructional practices, and learning activities can contribute to domain-specific efficacy beliefs (15). Moreover, a curriculum organized as a research self-efficacy roadmap can provide structured educational guidance for developing learners' confidence and competence in research-related tasks (16). Together, these studies indicate that self-efficacy can be intentionally fostered when curricular elements are coherently aligned with the capabilities students are expected to develop.

Not all curriculum influences are formally documented. The hidden curriculum—including implicit expectations, interpersonal patterns, institutional norms, classroom climates, and unspoken values—can also shape students' self-perceptions and behavior. Hidden curriculum dimensions have been linked to academic self-efficacy, indicating that teachers' expectations, school relationships, and organizational practices may reinforce or weaken students' confidence in their academic capabilities (17). Hidden curriculum components have likewise been associated with responsibility and creative self-efficacy, suggesting that everyday educational experiences communicate messages about autonomy, creativity, accountability, and competence (18). Their relationship with career adaptability also shows that implicit curricular experiences may influence students' readiness to cope with educational and occupational transitions (19). Therefore, designing an empowering curriculum requires attention not only to explicit objectives and content but also to the relational and organizational conditions through which those elements are implemented.

Academic achievement motivation constitutes the third principal construct in the proposed curriculum model. It refers to the processes that initiate, direct, and sustain behavior toward standards of academic excellence and personally meaningful educational goals. Achievement-motivated students are inclined to establish goals, value learning, persist in difficult tasks, seek competence, and experience satisfaction from successful performance. Academic achievement motivation is particularly important during upper secondary education because students encounter demanding subject matter and must make consequential decisions concerning examinations, university admission, and future careers. Research indicates that achievement goals and achievement motivation play important roles in academic performance, confirming that students' success cannot be adequately understood without considering why and how they pursue educational goals (20).

Motivation is influenced by both internal beliefs and the structure of learning environments. Instructional methods that promote inquiry, participation, discovery, and meaningful cognitive engagement may strengthen academic motivation and students' capacity to respond constructively to ordinary academic difficulties. The Bybee teaching method, for example, has demonstrated effectiveness in improving academic motivation and academic buoyancy, underscoring the motivational value of structured, learner-centered instructional cycles (21). Differentiated curriculum and instruction can likewise address variations in students' readiness, interests, and learning profiles while promoting creativity and motivation (22). These findings suggest that motivational development requires more than encouragement. Students need appropriately challenging content,

opportunities to make meaningful decisions, active participation in learning, and assessment practices that communicate progress and competence.

The expansion of blended and technology-supported learning has added another dimension to curriculum design. A blended-learning curriculum model for secondary education can integrate face-to-face and digital learning environments, diversify instructional opportunities, and improve access to educational resources (23). Among senior high school students in blended learning environments, technological self-efficacy, learning motivation, and self-directed learning have been found to be meaningfully connected, demonstrating that students' ability to engage with technology is intertwined with motivational and regulatory processes (24). Digital environments may support personalization, interaction, feedback, and learner autonomy, but their benefits depend on students' perceived competence and the educational quality of technology use. Technology should therefore be incorporated as a pedagogical resource that supports active learning and self-regulation, rather than being treated as an end in itself.

At the same time, contemporary learners operate within broader digital and communication environments that influence how they obtain information, form expectations, and evaluate educational opportunities. Web- and social-media-based approaches have transformed the communication and presentation of educational programs, illustrating the increasing importance of digital communication in connecting learners with courses and learning pathways (25). Although such approaches are not substitutes for sound curriculum design, they demonstrate that students' engagement with education is increasingly mediated through digital platforms. Curriculum planners must consequently promote technological competence, critical evaluation of information, responsible participation, and the ability to use digital resources for self-directed learning.

A responsive curriculum should also prepare students to address social responsibilities and future challenges rather than limiting learning to immediate examination performance. Educational models concerned with sustainability emphasize the value of collaborative communities in which technological knowledge, organizational learning, and responsibility are integrated (26). For secondary students, similar principles can be reflected in project-based learning, group problem-solving, resource conservation, civic participation, and the application of knowledge to authentic problems. Such experiences may simultaneously support adjustment by strengthening belonging and cooperation, self-efficacy by providing mastery and peer-learning opportunities, and achievement motivation by connecting academic activity to meaningful outcomes.

Despite the conceptual and empirical relationships among academic adjustment, academic self-efficacy, and academic achievement motivation, these constructs are often investigated separately. This fragmentation limits the ability of curriculum planners to explain how educational objectives, content, instructional methods, assessment, and feedback mechanisms can jointly influence students' adaptation, competence beliefs, and motivation. The three variables are likely to operate reciprocally: academically adjusted students may participate more effectively in learning experiences; successful participation may strengthen self-efficacy; and stronger self-efficacy may increase persistence and achievement motivation. In turn, motivated students may engage more actively with school, manage educational difficulties more effectively, and develop stronger adjustment. An integrated curriculum model is therefore required to identify the causal, contextual, and intervening conditions associated with these constructs and to translate them into implementable curricular strategies.

The existing literature provides valuable evidence concerning specific curriculum forms, instructional methods, hidden curriculum components, and individual psychological outcomes, yet a need remains for a validated model that integrates adjustment, self-efficacy, and achievement motivation within upper secondary education. Such a model should be grounded in expert knowledge and students' educational context and subsequently tested through quantitative procedures. It should also specify how objectives can incorporate adaptive, motivational, and efficacy-related competencies; how content can be organized continuously and spirally; how active instruction, peer learning, project-based activities, and group discussion can

be implemented; how formative and performance-based assessment can support development; and how ongoing stakeholder feedback can inform curriculum revision. By linking psychological theory with curriculum components, the model can provide a more comprehensive basis for educational planning than approaches focused exclusively on academic content or examination results.

Accordingly, the present study aimed to design and validate a curriculum model for enhancing academic adjustment, academic self-efficacy, and academic achievement motivation among upper secondary school students in Bushehr County.

Methods and Materials

In terms of its purpose, this study was applied research, and in terms of its nature and data-collection procedures, it employed a mixed-methods design. Mixed-methods research is an approach in which the researcher applies both qualitative and quantitative approaches within a single study and a unified research plan, collects and analyzes data, integrates the findings, and draws conclusions. Scholars and researchers have identified several reasons for the importance of employing mixed-methods research, including the triangulation of research methods and findings, complementarity, methodological development, expansion of the scope of research, the simultaneous examination of confirmatory and exploratory questions, and the attainment of a more comprehensive understanding of the results through the integration of findings.

The statistical population of the qualitative phase consisted of faculty members from all branches of educational sciences, as well as experts in education and information technology in Bushehr Province. Using snowball sampling, the final sample consisted of 15 participants, which was considered sufficient once theoretical saturation had been reached. The statistical population of the quantitative phase consisted of all female students in the experimental sciences track enrolled in upper secondary schools in Bushehr County during the 2025–2026 academic year. According to statistics provided by the Department of Education, this population consisted of 980 students. In the quantitative phase, G*Power software and statistical power analysis were initially used to determine the sample size. Considering a structural model comprising 15 predictor variables, a significance level of .05, statistical power of .95, and a medium effect size of .15, the minimum required sample size was estimated to be 298 participants.

This study was conducted using an exploratory sequential mixed-methods design. Accordingly, a sequential mixed-sampling strategy was employed, whereby the units of analysis were selected successively—first for the qualitative phase and subsequently for the quantitative phase—through a combination of purposive and probability sampling methods. In sequential qualitative–quantitative sampling, the findings obtained from the first sample, selected through purposive sampling, generally provide the basis for determining the characteristics and sampling framework of the second sample, which is selected through probability sampling.

Findings and Results

Research Question 1

How are the components of a curriculum model intended to improve and enhance academic adjustment, academic self-efficacy, and academic achievement motivation among upper secondary school students prioritized?

The Friedman test was employed to prioritize the components and determine their relative rankings. The results are presented below.

The variable comprising the factors associated with academic adjustment consisted of 13 components. The ranking of these components based on the Friedman test is reported in Table 1.

Table 1. Friedman Ranking of Factors Associated with the Components of Academic Adjustment

Variable	Mean	Mean rank
Self-regulation	8.11	5.13
Conceptual integration	9.02	7.27
Flexibility	9.10	7.28
Resource management	9.37	7.68
Goal orientation	8.95	7.01
Conflict resolution	9.04	7.38
Relationship with the teacher	8.83	6.96
Group collaboration	8.06	4.87
Social intelligence	8.81	6.66
Acceptance of rules	9.45	8.22
School belonging	9.05	7.06
Civic participation	9.00	7.30
Resource conservation	9.40	8.19

Note. , $\chi^2 = 240.90$, $p = .001$. The source text also reports $\chi^2 = 1556.22$, $df = 17$, and $p = .001$.

As shown in the table, the rankings obtained through the Friedman test for the components of academic adjustment indicate that acceptance of rules, resource conservation, and resource management received the highest priority. Conflict resolution, civic participation, flexibility, conceptual integration, and goal orientation occupied the middle ranks. Relationship with the teacher, social intelligence, self-regulation, and group collaboration received the lowest rankings.

The variable comprising the factors associated with academic adjustment consisted of 18 components. The ranking of these components based on the Friedman test is reported in Table 2.

Table 2. Friedman Ranking of Factors Associated with the Components of Academic Self-Efficacy

Variable	Mean	Mean rank
Problem-solving	8.61	7.68
Learning speed	8.45	7.87
Working memory	8.46	7.68
Mental creativity	7.65	6.45
Performance accuracy	6.41	5.04
Time management	7.27	5.70
Operational resilience	6.60	5.12
Assertiveness	7.84	6.33
Persuasive communication	7.71	6.54
Peer teaching	7.16	5.47
Group management	8.20	6.90
Support seeking	8.14	7.21

Note. , $\chi^2 = 259.40$, $p = .001$.

As shown in the table, the rankings obtained through the Friedman test for the components of academic self-efficacy indicate that problem-solving, working memory, support seeking, and group management received the highest priority. Persuasive communication, mental creativity, and assertiveness occupied the middle ranks. Time management, peer teaching, operational resilience, and performance accuracy received the lowest rankings.

The variable comprising the factors associated with academic adjustment consisted of 18 components. The ranking of these components based on the Friedman test is reported in Table 3.

Table 3. Friedman Ranking of Factors Associated with the Components of Academic Achievement Motivation

Variable	Mean	Mean rank
Future orientation	7.83	4.30
High standards	6.99	2.97

Realism	6.75	2.66
Prioritization	7.56	3.94
Enthusiasm for discovery	10.17	8.23
Voluntary study	10.33	8.50
Valuation	10.29	8.43
Intrinsic satisfaction	10.18	8.19
Perseverance	10.70	8.97
Failure management	9.27	5.46
Resilience	9.86	7.44
Role-model identification	10.06	7.83

Note. , $\chi^2 = 1396.50, p = .001$.

As shown in the table, the rankings obtained through the Friedman test for the components of academic achievement motivation indicate that perseverance, voluntary study, valuation, enthusiasm for discovery, and intrinsic satisfaction received the highest priority. Role-model identification, resilience, and failure management occupied the middle ranks. Future orientation, prioritization, high standards, and realism received the lowest rankings.

Research Question 2

What is the curriculum model for enhancing academic adjustment, academic self-efficacy, and academic achievement motivation among upper secondary school students in Bushehr Province?

The model comprises three measurement models. The academic adjustment measurement model consists of three observed variables and one latent academic adjustment variable. The academic self-efficacy measurement model consists of three observed variables and one latent academic self-efficacy variable. The academic achievement motivation measurement model consists of three observed variables and one latent academic achievement motivation variable.

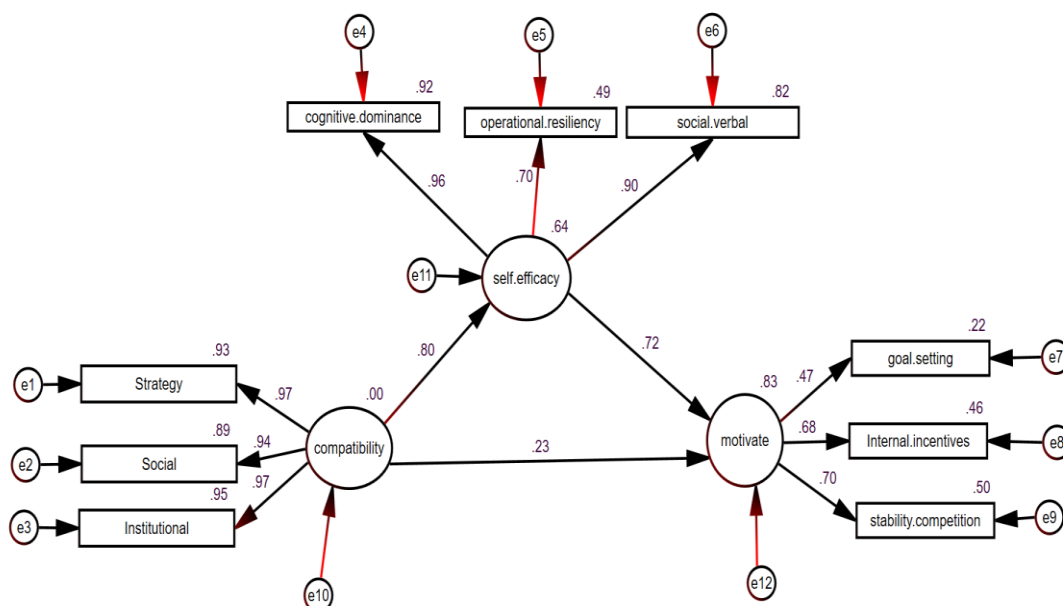


Figure 1. Final model of academic adjustment, academic self-efficacy, and academic achievement motivation (AMOS software output)

Research Question 3

What is the goodness of fit and validity of the curriculum model for enhancing academic adjustment, academic self-efficacy, and academic achievement motivation among upper secondary school students in Bushehr Province?

The first indicator of the model's validity was the set of model fit indices. The value of CFI = .96, which exceeded the acceptable threshold of .90, indicated that the hypothesized model had a very good comparative fit (Schumacker & Lomax, 1988). The GFI value of .92, which was also above .90, indicated that the model accounted for more than 92% of the variance and covariance in the data (Kline, 1998; Meyers et al., 2012). The RMSEA value of .07, which was below .08, indicated an acceptable approximation error and the absence of a substantial discrepancy between the sample and population covariance matrices (Browne & Cudeck, 1993). The χ^2/df value of 4.65 was also within the acceptable range of 1–5. These indices indicate that the final research model demonstrated good to excellent fit and could be employed as a valid model in future studies. The findings concerning the validity of the model are consistent with similar studies on curriculum design and validation in Iran. For example, Goodarzi et al. (2024), in their study titled “Designing and Validating a Social Education Curriculum Model for Upper Secondary Education,” employed phenomenology and confirmatory factor analysis to develop a model characterized by objectives, content, teaching–learning methods, and assessment. Similar to the model developed in the present study, their model demonstrated satisfactory validity. Furthermore, Baghbanian et al. (2019), in their study titled “Designing and Validating an Indigenous Critical Literacy Curriculum Model for Upper Secondary Education,” employed a mixed-methods design and factor analysis to identify and validate seven principal factors. Their results are consistent with the findings of the present study.

Another important finding regarding the validation of the model was its strong ability to explain the variance in the dependent variables—64% for academic self-efficacy and 83% for academic achievement motivation. These high coefficients of determination indicate that the model has very good predictive power and can be used as an effective framework for future educational interventions and curricula. This finding is consistent with the study by Gholami et al. (2019), which demonstrated that the elements of instructional materials and resources, teaching–learning strategies, learner activities, and learner grouping possessed the greatest explanatory power. It is also consistent with the findings of Tiari et al. (2016), who reported complete alignment between the components of their proposed model and the National Curriculum.

As shown in Table 4, the chi-square, comparative fit index, goodness-of-fit index, and root mean square error of approximation confirmed the fit of the hypothesized model. The calculated chi-square value was 111.54, and the relative chi-square value was 4.65. According to Schumacker and Lomax (2021), values between 1 and 5 are acceptable and confirm the fit of the hypothesized model. The CFI is a comparative fit index for which .90 is considered acceptable. The calculated CFI for the hypothesized model was .96, indicating that the model had an acceptable fit. Conceptually, the GFI resembles the statistic in multiple regression (Kline, 2019). This index represents the proportion of variance in the sample covariance or correlation matrix accounted for by the model, and it ranges from zero, indicating no fit, to 1, indicating perfect fit. As a general rule, the GFI should be greater than or equal to .90 to demonstrate an acceptable model fit (Meyers et al., 2012). The GFI value for the hypothesized model was .92, thereby confirming the model's fit. The root mean square error of approximation measures the discrepancy between the sample and population coefficients. Values closer to zero indicate a better-fitting model. The RMSEA value for the hypothesized model was .07, indicating acceptable model fit. Generally, when at least three indices fall within their acceptable ranges, the model can be considered to have a good and acceptable fit.

Table 4. Summary of the Fit Indices for the Academic Adjustment, Academic Self-Efficacy, and Academic Achievement Motivation Model

Index	χ^2	<i>df</i>	<i>p</i>	χ^2/df	GFI	AGFI	TLI	RFI	CFI	PCFI	RMSEA
Value	111.54	24	.001	4.65	.92	.86	.94	.93	.96	.64	.07

Table 5. Unstandardized Regression Coefficients for the Research Model

Predictor	Outcome	Estimate	Standard error	Critical ratio	<i>p</i>
Academic adjustment	Academic self-efficacy	.82	.048	17.05	.001
Academic adjustment	Academic achievement motivation	.06	.025	2.53	.01
Academic self-efficacy	Academic achievement motivation	.19	.026	7.26	.001

The results presented in Table 5 show that the direct paths from academic adjustment to academic self-efficacy and academic achievement motivation were significant ($p = .001$), as was the path from academic self-efficacy to academic achievement motivation ($p = .01$).

Table 6. Standardized Regression Coefficients for the Research Model

Structural path	Standardized estimate (β)	<i>p</i>
Academic adjustment $\rightarrow$ Academic self-efficacy	.80	.001
Academic adjustment $\rightarrow$ Academic achievement motivation	.23	.001
Academic self-efficacy $\rightarrow$ Academic achievement motivation	.72	.001

The results presented in Table 6 show the standardized coefficients of the research model. Accordingly, the direct effect of academic adjustment on academic self-efficacy ($\beta = .80, p < .001$), the direct effect of academic adjustment on academic achievement motivation ($\beta = .23, p < .001$), and the direct effect of academic self-efficacy on academic achievement motivation ($\beta = .72, p < .001$) were statistically significant.

Table 7. Estimated Indirect Effect of Academic Adjustment on Academic Achievement Motivation

Predictor	Outcome	Estimate	Lower bound	Upper bound	<i>p</i>
Academic adjustment	Academic achievement motivation	.57	.50	.67	.001

The results presented in Table 7 concerning the indirect effects among the study variables show that the indirect effect of academic adjustment on academic achievement motivation was statistically significant ($\beta = .57, p = .001$).

Table 8. Direct, Indirect, and Total Effects in the Hypothesized Model

Structural path	Direct effect	Indirect effect	Total effect	<i>p</i>
Academic adjustment $\rightarrow$ Academic self-efficacy	.80	—	.80	.001
Academic adjustment $\rightarrow$ Academic achievement motivation	.23	.57	.80	.001
Academic self-efficacy $\rightarrow$ Academic achievement motivation	.72	—	.72	.001

The results presented in Table 8 show the direct, indirect, and total effects in the research model. As can be observed from the total effects, the effect of academic adjustment on academic self-efficacy ($\beta = .80, p < .001$), the effect of academic adjustment on academic achievement motivation ($\beta = .80, p < .001$), and the effect of academic self-efficacy on academic achievement motivation ($\beta = .72, p < .001$) were statistically significant. The values indicate that academic adjustment explained 64% of the variance in academic self-efficacy, whereas academic adjustment, through the mediating role of academic self-efficacy, explained 83% of the variance in academic achievement motivation.

Discussion and Conclusion

The present study aimed to design and validate a curriculum model for enhancing academic adjustment, academic self-efficacy, and academic achievement motivation among upper secondary school students in Bushehr County. The qualitative findings identified 241 open codes, 18 principal components, and six overarching dimensions comprising causal conditions, the central phenomenon of an empowering curriculum, contextual conditions, intervening conditions, strategies, and consequences. The proposed curriculum was subsequently organized around five fundamental elements: objectives, content,

teaching–learning methods, assessment, and continuous revision. The quantitative findings demonstrated that the model had satisfactory fit and validity. Academic adjustment exerted significant direct effects on academic self-efficacy and academic achievement motivation, while academic self-efficacy significantly predicted academic achievement motivation. Academic adjustment also had a significant indirect effect on achievement motivation through academic self-efficacy. The model explained 64% of the variance in academic self-efficacy and 83% of the variance in academic achievement motivation, indicating substantial explanatory power.

The first group of findings concerned the prioritization of the components of academic adjustment. Acceptance of rules, resource conservation, and resource management received the highest rankings, followed by conflict resolution, civic participation, flexibility, conceptual integration, and goal orientation. Relationship with the teacher, social intelligence, self-regulation, and group collaboration occupied comparatively lower positions. These findings indicate that participating students perceived academic adjustment primarily in terms of their ability to function effectively within the organizational and normative structure of school. Acceptance of rules may provide the behavioral stability required for consistent participation in academic activities, while resource management enables students to use their time, educational materials, learning opportunities, and available support more effectively. Resource conservation may also reflect responsibility toward the school environment and recognition of students' roles as members of a broader educational community.

This interpretation is compatible with the view that adjustment is produced through interactions among students, teachers, school structures, and culturally embedded educational expectations. Pedagogical practices and students' classroom behavior are shaped by the cultural organization of education rather than solely by individual psychological characteristics (1). The importance assigned to rules and resources may consequently reflect the institutional context within which students define successful academic participation. The result is also consistent with evidence showing that a social adjustment curriculum can enhance academic buoyancy, academic identity, and cognitive flexibility (7). A curriculum that explicitly teaches responsible participation, adaptive responses to difficulty, and constructive engagement with institutional expectations can therefore support both behavioral adjustment and broader psychological development.

The middle-ranking components of conflict resolution, civic participation, flexibility, conceptual integration, and goal orientation demonstrate that academic adjustment also involves students' capacity to respond constructively to interpersonal and intellectual demands. Flexibility allows students to modify ineffective strategies, whereas conflict-resolution abilities enable them to manage disagreements without withdrawing from the school environment. Civic participation and resource conservation suggest that adjustment includes social responsibility and active membership in the school community. This interpretation is consistent with findings concerning the effects of a balanced spiritual education curriculum on students' social adjustment and identity formation (8). It also corresponds with the technological-community perspective, which emphasizes collaboration, shared responsibility, and the integration of learning with meaningful collective concerns (26).

Although relationship with the teacher received a lower relative ranking, it should not be interpreted as unimportant. A lower Friedman rank indicates comparative priority within the present set of components rather than the absence of educational significance. Supportive teacher–student relationships may provide the interpersonal context in which students learn to accept rules, manage conflicts, use resources, and participate collaboratively. Previous research has shown that teacher–student relationships predict school adjustment and that resilience mediates this relationship (5). Psychosocial environments are also associated with adolescents' behavioral and adjustment patterns, demonstrating that student behavior develops through an interaction between personal and environmental influences (6). Thus, the proposed curriculum should integrate institutional responsibility with supportive relationships rather than treating rules and interpersonal support as competing priorities.

The second group of findings concerned academic self-efficacy. Problem-solving, working memory, support seeking, and group management received the highest rankings. Persuasive communication, mental creativity, and assertiveness occupied the middle positions, while time management, peer teaching, operational resilience, and performance accuracy received lower rankings. The prominence of problem-solving indicates that students' academic self-efficacy is strongly associated with their perceived capacity to deal with complex and unfamiliar learning tasks. Working memory supports the retention and manipulation of information during learning, while support seeking reflects students' confidence in mobilizing interpersonal and institutional resources. Group management further indicates that perceived competence is not limited to individual task performance but includes effective participation and leadership in collaborative learning situations.

These results can be explained through social cognitive theory, according to which self-efficacy beliefs influence the tasks individuals select, the effort they invest, their persistence in the face of difficulty, and their responses to failure (11). Students who successfully solve academic problems accumulate mastery experiences, which are among the most influential sources of self-efficacy. Effective support seeking may also expose students to verbal encouragement, instructional guidance, and competent models. From the perspective of reciprocal determinism, students' efficacy beliefs influence their behavior, while successful behavior and supportive environmental responses subsequently reinforce those beliefs (9). Therefore, the identified components should be cultivated through repeated opportunities for guided practice, gradual increases in task complexity, peer modeling, and constructive feedback.

The strong role of problem-solving is also consistent with the conceptualization of self-efficacy as perceived control over task performance (10). When students believe that they can analyze a problem, select an appropriate strategy, monitor progress, and obtain assistance when required, difficult academic situations become manageable challenges rather than threats. Longitudinal evidence concerning mathematics similarly demonstrates reciprocal relationships among self-efficacy, self-concept, and achievement (12). Successful performance can strengthen efficacy beliefs, and stronger efficacy beliefs can promote subsequent effort and achievement. The curriculum should therefore allow students to experience visible progress through appropriately challenging tasks rather than exposing them repeatedly to activities that are either excessively difficult or insufficiently demanding.

The findings also correspond with studies demonstrating that curriculum characteristics influence self-efficacy. Curriculum quality has been related to academic engagement through the mediating role of psychological self-efficacy (13). The implemented curriculum has likewise been shown to influence the professional self-efficacy of student teachers (14), while specific curriculum components have been associated with entrepreneurial self-efficacy (15). A roadmap-based curriculum can further provide systematic opportunities for developing research self-efficacy by clarifying expectations and arranging progressively more complex learning experiences (16). These findings reinforce the present conclusion that academic self-efficacy can be intentionally developed through the coherent alignment of objectives, content, instruction, assessment, and feedback.

The hidden curriculum should also be considered in explaining the self-efficacy findings. Students' beliefs are affected not only by formal instructional materials but also by implicit messages regarding competence, responsibility, creativity, participation, and authority. Hidden curriculum components have been associated with students' academic self-efficacy (17), creative self-efficacy, and responsibility (18). They have also been linked to career adaptability, suggesting that institutional relationships and implicit educational expectations can influence learners' readiness to manage future transitions (19). Consequently, an empowering curriculum must ensure that classroom interactions and assessment practices communicate that capability can develop through effort, strategy use, cooperation, and reflection.

The third group of findings involved academic achievement motivation. Perseverance received the highest ranking, followed by voluntary study, valuation, enthusiasm for discovery, and intrinsic satisfaction. Role-model identification, resilience, and failure management occupied the middle ranks, whereas future orientation, prioritization, high standards, and realism received comparatively lower rankings. These findings suggest that achievement motivation among the participants was primarily characterized by sustained engagement and the intrinsic value assigned to learning. Perseverance enables students to continue working when immediate success is unavailable, while voluntary study indicates engagement beyond minimum external requirements. Enthusiasm for discovery and intrinsic satisfaction further show that curiosity and enjoyment may constitute important motivational resources.

This pattern is consistent with evidence that achievement goals and achievement motivation contribute meaningfully to academic performance (20). Students are more likely to sustain effort when they value learning, perceive attainable goals, and experience satisfaction from progress. The findings also align with research demonstrating that inquiry-oriented instructional approaches can strengthen academic motivation and academic buoyancy (21). Differentiated curricula may similarly enhance motivation by adjusting task demands and instructional opportunities to students' readiness, interests, and learning characteristics (22). The present results therefore support the inclusion of active teaching, project-based learning, collaborative inquiry, and opportunities for exploration within the proposed curriculum.

The comparatively lower rankings of future orientation, prioritization, high standards, and realism may indicate that students' immediate engagement is stronger than their ability to connect present educational activities with long-term goals. This finding highlights the need for explicit instruction in goal setting, planning, prioritization, and realistic self-appraisal. It does not mean that students lack aspirations; rather, their aspirations may not yet be translated into structured plans and manageable sequences of action. A curriculum that provides opportunities to define long-term objectives, divide them into short-term tasks, monitor progress, and revise plans could connect intrinsic interest with sustained goal-directed achievement.

Technology-supported learning may contribute to this process when it is pedagogically structured. Among senior high school students, technological self-efficacy, learning motivation, and self-directed learning have been shown to be interconnected within blended learning environments (24). A blended-learning curriculum can diversify resources, increase opportunities for learner choice, and support learning beyond conventional classroom boundaries (23). Digital communication may also expand students' access to educational information and learning pathways (25). Nevertheless, technology should support meaningful activity, feedback, collaboration, and self-regulation; simply increasing access to digital tools is unlikely to strengthen motivation without a coherent instructional design.

A major finding was the significant structural relationship among the three principal variables. Academic adjustment had a strong direct effect on academic self-efficacy ($\beta = .80$) and a smaller but significant direct effect on achievement motivation ($\beta = .23$). Academic self-efficacy, in turn, had a strong direct effect on achievement motivation ($\beta = .72$). Furthermore, academic adjustment had a significant indirect effect of .57 on achievement motivation through self-efficacy, increasing its total effect to .80. These results indicate that adjustment contributes to motivation partly because academically adjusted students are more likely to perceive themselves as capable of managing educational requirements. Compliance with school expectations, effective resource use, constructive relationships, and adaptive coping provide opportunities for successful performance; these mastery experiences strengthen self-efficacy, which subsequently promotes perseverance, voluntary study, and enthusiasm for achievement.

The model's explanatory coefficients support this interpretation. Academic adjustment explained 64% of the variance in academic self-efficacy, while adjustment and self-efficacy jointly explained 83% of the variance in achievement motivation. The substantial mediated effect shows that self-efficacy is a central psychological mechanism connecting students' adaptation

to their motivation. This finding corresponds with evidence that self-efficacy mediates the association between curriculum quality and academic engagement (13). It also accords with social cognitive theory, in which environmental conditions influence motivated behavior through personal beliefs and self-regulatory processes (11). Accordingly, improving adjustment without strengthening students' perceived capability may produce only limited motivational change.

The fit indices further confirmed the adequacy of the proposed model: CFI = .96, GFI = .92, TLI = .94, RFI = .93, and RMSEA = .07. These values indicate that the hypothesized relationships provided an acceptable representation of the observed data. The model's satisfactory fit is consistent with previous Iranian curriculum-development studies that have successfully organized curriculum components into empirically valid frameworks. An indigenous critical literacy curriculum model demonstrated the importance of integrating objectives, content, instructional methods, and assessment within a contextually appropriate structure (4). A semi-centralized curriculum aligned with Iran's National Curriculum similarly emphasized coherence between national principles and context-responsive implementation (3). Curriculum development should thus combine theoretical coherence, empirical validation, and sufficient flexibility to respond to local needs (2).

Overall, the findings demonstrate that academic adjustment, self-efficacy, and achievement motivation form an interconnected developmental system that can be addressed through curriculum design. The empowering curriculum identified as the central phenomenon should establish objectives related to adaptive functioning, capability beliefs, and motivated learning; organize content continuously and spirally; employ active, collaborative, peer-assisted, and project-based methods; use formative assessment, self-assessment, descriptive feedback, and performance assessment; and include ongoing revision based on stakeholder feedback. Such integration may create a positive developmental cycle in which improved adjustment generates successful educational experiences, successful experiences enhance self-efficacy, and greater self-efficacy strengthens achievement motivation.

The study had several limitations. The quantitative population was restricted to female students in the experimental sciences track at upper secondary schools in Bushehr County; therefore, the findings cannot automatically be generalized to male students, students in other academic tracks, younger learners, or students in other provinces. The cross-sectional quantitative phase also limits causal conclusions because the proposed relationships were examined at one point in time. Although the qualitative sample reached theoretical saturation, its relatively small size may not represent the full diversity of perspectives held by students, parents, school administrators, curriculum developers, and policymakers. The use of self-report questionnaires may also have introduced social-desirability and common-method biases. Finally, the study validated the structural relationships of the model but did not experimentally implement the complete curriculum over an extended period.

Future studies should validate the model among male students, students from different academic tracks, and culturally and geographically diverse populations. Longitudinal and experimental studies are recommended to examine changes in adjustment, self-efficacy, and achievement motivation before, during, and after curriculum implementation and to determine whether the effects are maintained over time. Researchers could compare the proposed curriculum with conventional instruction and investigate whether its effectiveness varies according to grade level, prior achievement, socioeconomic status, school climate, or access to educational technology. Future qualitative studies should include students, parents, counselors, principals, and policymakers to extend the model's contextual dimensions. Additional research could also examine other mediators and outcomes, including academic engagement, psychological well-being, school belonging, academic buoyancy, self-regulated learning, and actual academic performance.

Curriculum planners should incorporate explicit objectives for academic adjustment, self-efficacy, and achievement motivation into upper secondary curricula and align content, teaching methods, and assessment with these objectives. Teachers should employ problem-based and project-based activities, peer teaching, cooperative learning, structured classroom

discussion, and progressively challenging tasks that allow students to experience mastery. Schools should provide instruction in goal setting, time and resource management, conflict resolution, support seeking, resilience, and failure management. Formative assessment, self-assessment, performance-based assessment, and descriptive feedback should be used to emphasize improvement rather than merely final scores. School leaders should also create continuous feedback mechanisms involving students, teachers, parents, and counselors so that the curriculum can be regularly reviewed and adapted to emerging educational and psychological needs.

Acknowledgments

We would like to express our appreciation and gratitude to all those who helped us carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

1. Alexander R. Culture and pedagogy: International comparisons in primary education. Malden, MA: Blackwell; 2021.
2. Hosseini Largani SM. The Analysis of Curriculum Development in Iran's Higher Education. Quarterly Journal of Research and Planning in Higher Education. 2023;26(4):1-28.
3. Tiary K, Naderi E, Seif Naraghi M. Design of a semi-centralized curriculum model aligned with Iran's national curriculum for lower secondary education. Jundishapur Education Development. 2020;7:66-73.
4. Baghbanian SZ, Ghaderi M, Ali Asgari M. Design and validation of an indigenous critical literacy curriculum model in upper secondary education. Curriculum Studies. 2020;14(55):65-90.
5. Park H, Kim J. The Effect of Teacher-Student Relationship on School Adjustment Mediated by Resilience as Recognized by Elementary School Students. Korean Association for Learner-Centered Curriculum and Instruction. 2024;24(5):571-83. doi: 10.22251/jlcci.2024.24.5.571.
6. Ando M, Asakura T. Psychosocial factors associated with smoking and drinking among Japanese early adolescent boys and girls: Cross-sectional study. Biopsychosocial Medicine. 2020;13(1):1-10.

7. Ahmadpour R, Armand M, Najari M. The effectiveness of the social adjustment curriculum on academic buoyancy, academic identity and cognitive flexibility of gairl students. *Cultural Psychology*. 2021;4(2):74-90.
8. Mohammadi A, Rezaei S, Sharifi F. Examining the Effect of a Balanced Spiritual Education Curriculum on Spiritual Identity and Social Adjustment of Lower Secondary Students. *Quarterly of Educational and Psychological Studies*. 2023;20(4):112-29.
9. Bandura A. *Social foundations of thought and action*. Englewood Cliffs, NJ:2021.
10. Bandura A. *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company; 2020.
11. Bandura A. Social cognitive theory. *Handbook of Theories of Social Psychology*. 1: Sage Publications; 2022. p. 349-73.
12. Arens AK, Frenzel AC, Goetz T. Self-concept and self-efficacy in math: Longitudinal interrelations and reciprocal linkages with achievement. *The Journal of Experimental Education*. 2022;90:615-33. doi: 10.1080/00220973.2020.1786347.
13. Javan Mojarad A, Sheikhi Fini AA, Zeinlipour H, Abolghasemi A. The relationship between curriculum quality and students' academic engagement: The mediating role of psychological self-efficacy. *Psychological Achievements*. 2020;27(2):155-70.
14. Gholami A, Mousapour N, Aghahosseini T. The effect of implemented curriculum on professional self-efficacy of student teachers in educational sciences at Farhangian University, Isfahan. *Research in Curriculum Studies*. 2023;3(1):1-21.
15. Salehi L, Monavari Fard F, Mohammadi Y. Curriculum components and entrepreneurial self-efficacy of agricultural applied-science higher-education students in Alborz. *Agricultural Education Management Research*. 2020(39):16-27.
16. Khanealipour Rudi M, Hosseinzadeh B, Hosseini Daroukolayi SZ. Educational use of the research self-efficacy roadmap curriculum. *Clinical Excellence*. 2023;13(2):21-31.
17. Rahnama A, Alifat A, Omidi M. The role of hidden curriculum dimensions and components in academic self-efficacy of male primary-school students from teachers' perspectives. *Quarterly Journal of Educational Psychology*. 2021(29):98-109.
18. Mahmoudi Mehr S, editor *Examining the Relationship between Hidden Curriculum Components and the Components of Responsibility and Creative Self-Efficacy among Students in Mamulan County*. Second International Conference on Humanities, Social Sciences and Law; 2024.
19. Tahmasebzadeh Sheikhlari D, Mahmoudi F, Farajpour Bonab F. The role of hidden curriculum components in the career adaptability of University of Tabriz students. *Education Strategies in Medical Sciences*. 2021;11(4):78-87.
20. Rezaei AM, Jahan F, Rahimi M. Academic performance: The role of achievement goals and achievement motivation. *Educational Psychology*. 2020;12(42):155-71.
21. Izadi F, Azadi Konari R. The Effectiveness of the Bybee Teaching Method on Academic Motivation and Academic Buoyancy among Sixth-Grade Elementary Students. *Journal of Curriculum and Learning-Centered Instruction*. 2025;4(1).
22. Bingol B, ÖZyaprak M. Enhancing Higher Education: Differentiating the Curriculum and Instruction to Foster Mathematical Creativity and Motivation. *The Journal of Creative Behavior*. 2025;59(2). doi: 10.1002/jocb.70000.
23. Sharifi S, Sabbagh Hasanzadeh T, Zohourparvande V. Design and development of a curriculum model based on blended learning in secondary education. *Educational Sciences and Counseling Inquiry*. 2020;6(13):91-118.
24. Liwanag MF, Galicia LS. Technological Self-efficacy, Learning Motivation, and Selfdirected Learning of Selected Senior High School Students in a Blended Learning Environment. *Technium Social Sciences Journal*. 2023;44(1):534-59. doi: 10.47577/tssj.v44i1.8980.
25. Bhardwaj A, Kumar V. Web and social media approach to marketing of engineering courses in India. *International Journal of Business Innovation and Research*. 2022;27(4):541-55. doi: 10.1504/IJBIR.2022.12250.
26. Benn S, Rusinko C. The technological community as a framework for educating for sustainability in business schools. *Journal of Management & Organization*. 2019;17(5):656-69. doi: 10.5172/jmo.2019.17.5.656.