

**Original Article****Design and Validate the Blended Learning Model of Educational Organizations Along with the Goals of the CEPA Plan (Case Study: International Wetlands of Sistan and Baluchistan Province)****Samaneh Dalirboostansarai \*<sup>1</sup>, Mahdiah Rezaei <sup>2</sup>, Maryam Larijani <sup>3</sup>, Seyyed Mohammad Shobeiri <sup>4</sup>**

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**Received:** 2023/06/22**Accepted:** 2023/10/22**Abstract**

The purpose of the research is to design and validate the blended learning model of educational organizations of the CEPA plan for the protection of international wetlands in Sistan and Baluchistan region. This research is descriptive-survey in terms of purpose and qualitative-quantitative research method. In the qualitative part, the components of the model were extracted by combining the IBM blended learning model and the components of the CEPA plan. Then, evaluation and summarization of the discourse space was done through Q method and 51 Q phrases were selected from among 110 propositions by ten experts. The statistical population included the educational organizations of the region. Questionnaire Q was given to 19 specialists of the CEPA plan by means of targeted sampling, and the micro-components were prioritized. Structural equation modeling analysis was used to test the model. In the quantitative part, the validation of the questionnaire was done by SPSS and Amos software, and the researcher-made questionnaire with Cronbach's alpha of 91% was available to the participants. Based on the results of the qualitative part, the model includes four main components and 14 key micro-components. According to the results of the quantitative section, the t-statistic values for all factors are higher than the standard absolute value of 1.96. The validation of the research model also showed the significance of the relationships between the variables and the acceptability of the overall fit, and the research questions were suitable explanations. Creating the motivation for participation with the highest factor load was the first priority of the model design. Of course, the priority micro-components in the main component of communication and interaction are "educational network development", in education and information, "educational process development" in partnership and cooperation, "participatory and inter-departmental management" and sustainable practical action, jointly "establishment of the indigenous approach" and "Combined use of learner-centered styles" were selected.

**Keywords**

Blended learning, Gouatre Wetland, Hamoon Wetland, Protection, and CEPA.

**Introduction**

At The environment in which humans live includes various systems such as forests, mountains, wetlands, and rivers, each of which provides with humans the numerous services.

The Wetlands are of the most productive ecosystems in the world (Li et al, 2020). The ecological value of wetlands is ten times more than forests and 122 times more than arables (Daryai and Mirdamadi, 2014). Also, wetlands are considered as an opportunity for the developing the tourism in the surrounding villages and cities, and they also have a series of ecosystem cultural services, which are often ignored or less considered in the ecosystems analysis (Goudrati Shojaei et al., 1400).

Iran has 24 international wetlands, of which Sistan and Baluchistan province has two valuable international wetlands (Moradi et al., 2017). Gouatre and Khowr-e Bahu international wetlands on Makran coast and Hamoon wetlands complex in Sistan region. The International Wetland of Gouatre and Khowr-e Bahu is a set of water systems including river, estuary and bay, which was included in the list of international Ramsar wetlands in 1999. This wetland is located at 85 km from Chabahar city in Sistan and Baluchistan province in Makran region and near the Iran-Pakistan border. (Organization plan of the fishing quay of Gouatre Bay, 2018). Hamoon wetland is a large wetland complex located at the north of Sistan and Baluchistan province known as Sistan region (plain) and was registered in the Ramsar Convention in 1975. It consists of a lake, ponds and wetlands, whose level is constantly fluctuating and changing. In the Sistan region, there are three rivers named Puzak, Sabri, and Helmand, which are the habitats of various species of plankton, resistant blue algae, and also the habitat of so many fishes. In addition to the habitat of domestic birds, thousands of migratory birds from northern lands (Siberia) spend the winter in this wetland (Hamoon Wetland Comprehensive Management Plan, 2015).

The Ramsar Convention (1971) is the first international environmental convention on wetlands in line with the importance of wetlands and their protection, aiming wise use of these valuable ecosystems. In the Ramsar Convention, for the protection of wetlands, the National Biodiversity Strategies and Action Plans (NBASPs) was developed, a part of which is Communication, Education, Participation and Action plan (Soleimani et al., 2016). In fact, the convention took advantage of a strategic plan called CEPA to achieve its scope (wise protection and use of wetlands). CEPA is a long-term investment that believes that if different stakeholders have more knowledge and awareness of the importance and functions of the wetland and the needs of other practitioners, as well as being in constant communication with each other and participating in issues related to the wetland, all these processes can lead to the wise exploitation and protection of wetlands in the long term. (Ramsar Convention Secretariat, 2010) The implementation of the CEPA plan requires the participation and cooperation of numerous governmental and private groups and stakeholders and public participation in general and has a wide level. Achieving the participation of all shareholders needs strategy in national relationship, education and communication (Gray&Kaminski,2005). It is worth mentioning that a beneficiary is an individual, group or organization that can affect the attitude, resources or outputs of the organization or be affected by the outputs of the organization. Therefore, in the protection of wetlands, the analysis of the beneficiaries of the CEPA plan is very necessary (Sinai et al., 2018).

The structures and functions of the wetland ecosystem lead to connection of the wetland ecology with human well-being and the economy of the region, and it helps people and managerial authorities to understand the relationship between a healthy ecosystem and human well-being. (Rutter et al, 2022) The livelihood of the local people around the wetland depends on the wetland (Das & Vincent, 2009). Since most of the problems of wetlands are created by segmentalism and lack of public awareness about their values and functions and the degree of vulnerability and related future consequences, the ecosystem-based management approach is one of the solutions ((Chaudhury & Upadhaya, 2016). Environmental management helps policy makers in designing different management strategies for wetlands (Karami et al., 2021). The CEPA plan is based on environmental management. It is also a strategy for the

comprehensive management of land, water and biological resources that brings wise protection, sustainability and exploitation and is considered as a means to achieve sustainable development. Environment -based management is one of the best and most efficient methods in stimulating the participation of organizations and local communities by forming a network and establishing communication between different organizations (Mehdi Nasab, 2021). The national director of Iran's Wetlands Protection Plan, emphasizing that environmental or ecosystem management is the way to save wetlands, believes that if decision-makers and local communities become aware of the value and function of wetland and follow the sustainable management, these water ecosystems will improve (Arvahi, 2020). For this reason, the CEPA plan creates an advanced conservation approach by operationalizing environmental management, in which the environment is preserved by recognizing reasonable economic exploitations, considering the role of humans as a part of the ecosystem, and also considering the relationship between Various components of natural resources and the environment at levels beyond the apparent borders of environments and often at the watershed level (Hoshiar et al., 1400). The aim of the current research is to design and validate the blended learning model for educational organizations that are one of the key beneficiaries in the CEPA plan. Educational organizations are schools and universities identified as beneficiaries in the comprehensive management plan of the international wetlands of Gouatre and Hamoon. It is worth mentioning that a beneficiary is an individual, group or organization that can influence the attitude, resources or outputs of the organization or be influenced by the outputs of the organization (Sinai et al., 2018).

**CEPA:** CEPA actually provides an active and dynamic situation for public participation so that the activists of each sector consider themselves responsible for biodiversity and its preservation (Pralhad & Kriwoken, 2010). The components of CEPA are:

**Communication:** This section is about the exchange of information creating by discourse and conversation between departments and stakeholders. This communication increases awareness and knowledge in line with supporting biodiversity protection plans and their implementation. Developing capacity among organizations is one of the other processes of this department.

**Education:** Developing knowledge, clarifying values, developing concerns about the environment and biodiversity and expanding attention and skills, and increasing responsibility in relation to the environment and biodiversity are followed in this department.

**Participation:** This section helps different people to understand the issue and place it as a part of people's life concerns. In this section, it is possible for different people, groups and organizations with different knowledge to share their information.

**Awareness and Action plan:** At this stage, it is necessary to create an action towards changes in the state of biodiversity. Because awareness is not alone enough and needs to change behavior and active response, which process is followed and implemented in this department (Hesselink et al., 2006).

The implementation of this plan lead to a change in the level of awareness, attitude and behavior of people, governmental and non-governmental sectors and their participation in the wise restoration, protection and exploitation of wetland ecosystems. Therefore, according to the guidelines of the Ramsar Convention, the preparation and implementation of the CEPA in the wise protection and use of wetlands should be placed on the agenda (Lee, 2015).

### **Blended Learning Approach**

The blended learning approach became the most common educational approach from the beginning of the 20th century (Guzer & Caner, 2014). Of course, blended learning is a relatively new term, but its content has existed for several decades in the areas such as virtual education (Akkoyunlu, 2008). Now, with the development of technologies such as web 2.0

tools, management systems, learning and other interactive technologies that are often available on mobile phones, the existing gap between traditional education and online education was removed and the integration between these two methods started (Asfijani, 2018). Blended learning is described as a method to maximize the advantages of face-to-face teaching methods and multiple technologies for learning (Yerasimou, 2010). But the broadest definition of blended learning is provided by Driscoll (2008). He believes that blended learning has four different definitions according to different goals including: 1-combination of web-based technology methods to achieve educational goals; 2- The incorporating various pedagogical approaches to produce optimal learning output with or without educational technology; 3- incorporating any form of educational technology with face-to-face training 4- incorporating the educational technology with real job duties to create a harmonious effect between learning and work.

### **Benefits of Blended Learning**

Blended learning with the advantages of traditional and electronic education is an effective approach to increase the effectiveness of learning, easy access to educational materials and increase the effectiveness of costs. Also, by providing different methods for learning, it increases the appealing of education and attention to individual differences, because not all people learn in the same way, and for this reason, using different methods for education is necessary (Kashnoudifar et al., 2019). It seems that blended learning is an incorporation of systemic approach and contingency approach to learning. This means that while paying attention to the relationship between all components as a whole, special attention is paid to the conditions of using these tools in order to achieve the best result. The advantage of blended learning is not only increasing the effectiveness of educational methods, but it is clear that, like all learning methods, the primary and basic goal of this method is to reduce the costs and increase the quality of outputs.

Also, the success factors of blended learning include: 1- blending design (correct blending of teaching methods). 2- Time flexibility. 3- Blending of media and learning styles. 4- Supporting the learners (providing feedback for learners). 5- Executive support 6- type and quality of content (Asfijani, 2018).

### **Blended Learning Models**

In the research literature related to blended learning, six different models are usually used for its application. Among the blended learning models are:

1. Khan's 8-D, which is a guide for designing and developing and organizing the blended learning plans including eight dimensions: pedagogical, technological, user interface design, evaluation, electronic learning management, resource support, ethical and organizational considerations.

2. Rotational model: In this model, there is a rotation between different learning methods and it has four subgroups: station individual, laboratory and upside down.

3. Flexible model: online education is the primary learning tool and the instructor has a supporting role.

4. Disjointed model: the trainee chooses one or more courses to help other courses online and receives other courses in a face-to-face environment or without a website.

5. Enriched model: the trainee receives most of the courses online, and certain courses are held face-to-face with the presence of a lecturer or expert.

6. IBM model: This model emphasizes the importance of cooperation and participation in the level of retention and maintenance in learning and is a combination of traditional learning with technological tools. It consists of four stages, which are:

1- Learning through information, 2- Learning through interaction, 3- Learning through

cooperation and 4- Learning through order (Najafi, 2016).

From conducted studies, the stages of the IBM blended learning model had the most convergence with the components of the CEPA. Therefore, in the current research, this blended learning model was used in the formation of Q groups in combination with the CEPA, discussed in the research method section.

As mentioned earlier, many of beneficiaries have little information and even lack the necessary information in the field of biodiversity and wetlands and the plans prepared in this field, so it is necessary for the planners and decision makers to identify the level of awareness of the various stakeholders and attempt to increase the awareness (Akbari et al., 2021). Therefore, it is necessary to design an educational model for the key beneficiaries of the CEPA. CEPA includes a wide range of beneficiaries, including educational organizations, which are one of the key beneficiaries and play a significant role in the implementation of CEPA and the protection of wetlands. In this research, educational organizations means the schools and universities.

On the other hand, according to the Ramsar Convention, member countries are required to prepare and implement the CEPA, which is an awareness and educational plan with the participation of beneficiaries in the protection of wetlands, in order to protect their international wetlands. Since the CEPA includes various beneficiaries who have common interests in exploitation of the wetlands, designing an educational roadmap for the broad beneficiaries of the CEPA requires a flexible educational method that takes into account individual differences in education and use different educational tools according to the circumstances. Considering that not all people learn in the same way, it is necessary to use different methods for education, the blended learning by providing different methods to learning increases the appealing of the education and attention to individual differences (Khoshnudifar et al., 2019). The use of blended learning in line with the protection of wetlands is also the innovation of this research. For this purpose, after examining different blended learning models, the CEPA plan and the IBM blended learning models were blended and the main components of the blended learning model of educational organizations were extracted, which can be used at the macro level.

The purpose of this research was to design a blended learning model for educational organizations that played a key role in the international wetlands plan of Sistan and Baluchistan region. Then this educational model was validated. The research questions are:

1- What are the main components of blended learning model of educational organizations in CEPA of the international wetlands of Sistan and Baluchistan province?

2- What are the key micro-components of the blended learning model of educational organizations in CEPA of the international wetlands of Sistan and Baluchistan province?

3- Is the blended learning model of organizations is valid in CEPA plan of the Sistan and Baluchistan Province International Wetlands?

### **Research Background**

From Abedi and Hosseini (2021), the level of knowledge and public awareness of the beneficiaries of the local communities of the Amir Kalaye Wetland CEPA was measured, and according to the results, the studied variables including the source of obtaining information about wetlands, the level of familiarity with the values and threatening factors of the wetland, measures and tools required for wetland protection did not show any significant difference between villages ( $P < .05$ ).). However, there was a significant difference between the dependent variable of public awareness level and the independent variables under study ( $P < .05$ ).

In order to study the participation of beneficiaries, Amini et al. (2021) in a study titled "environmental- based completion of wetlands management framework " found that

government, non-government, local people, judiciary and legislature are the main beneficiaries in the protection of wetlands. The strategic analysis of CEPA by Abedi and Abedinzadeh (2021) indicated that this wetland is strong in terms of internal factors, but it is weak in terms of using opportunities and dealing with threats and external factors. Based on the rating, the QSPM strategy (ST) is also the sustainable participation of beneficiaries and local communities in sustainable protection and exploitation of the wetland and the strategy of creating interaction between organizations and executive bodies and local communities through the formulation of a wetland management plan to familiarize with the legal regime of the wetland (ST) had the highest rank. In a broader study, Mehdi Nasab (2020), by examining the attitude of native students regarding the participatory management of wetlands, found that there is a deep gap and mistrust towards the custodian of wetland protection among the natives. Blended learning also had a significant effect on increasing the awareness of the natives. Abedi and Gensi (2020) also investigated the factors affecting the destruction of the wetland according to the decision-making criteria of CEPA in the Amirkalaye wetland and found that the segmentism of beneficiaries organizations, lack of familiarity with the rules and legal regime of the wetland, lack of attention and reliance on native knowledge, lack of awareness of values and functions and threats of the wetland and the failure to modify and update the preventive laws (such as penalties) are among the most important effective factors of wetland destruction. Asgaripour et al. (2019) studied the effectiveness of environmental education on the attitude and awareness of the environment in preschool students. The findings indicated that there was a significant difference between the pre-test and the post-test. As a result, it is concluded that environmental education plays an important role in improving the attitude and awareness of the environment in primary ages. Therefore, educations can be considered as a solution to prevent from destruction of the environment. Fuladi et al. (2020) compiled the managerial strategies of Jaz-Murian wetland with emphasis on water resources and prioritized the strategies by hierarchical analysis. The results showed that preservation and restoration of native vegetation and then public participation in watershed management had the highest priority and were placed at the top of the hierarchical analysis. According to Jadidi and Nohagar (2019), environmental education has a positive effect on first secondary school students to protect the wetland. In another study, Guan et al. (2015) studied the factors influencing public's tendency to participate in the restoration of Piyank Lake wetland in China. They found that the education plan in the government can significantly increase the participation of farmers in the restoration of the wetland, and the variables of age, household size, distance of residence from the wetland, and household income have a negative effect on the participation of farmers. Also, men are more interested in participating in wetland restoration. Alexandar and Poyyamoli (2014), studied the effectiveness of education based teaching and active learning at the high school level of Puducherry and Cuddalore of India, and their results showed that environmental education is an important approach to encourage students to protect and support the environmental. In the report of Ebrahim et al. (2012), wetlands conservation education was conducted as a collective participation in Malaysia and showed that the inclusion of environmental education along with educational packages in Malaysian schools increased students' awareness of wetlands.

### **Methodology**

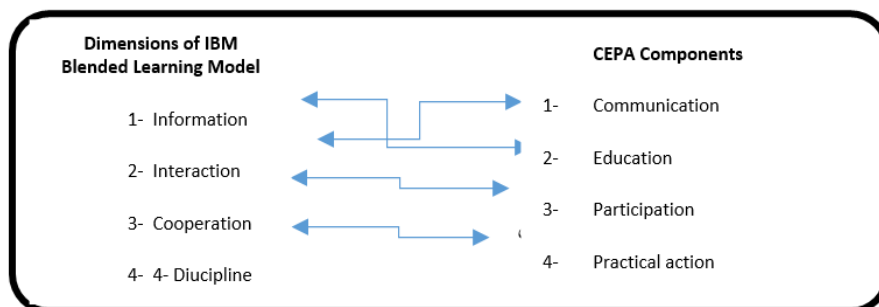
The current research is a blended one, and is descriptive and survey in terms of practical orientation and purpose. The data collection methods included structured interview and documentary study, and a researcher-made questionnaire was the data collection tool. The nature of the research is exploratory and in order to answer the second research question, the Q method was used. This technique enables the researcher to identify and classify firstly the

individual opinions and secondly to categorize groups of people based on their opinions (Danaei Fard et al., 2004). Q method has both a data collection method (sorting) and a data analysis method (Q factor analysis). In this research, the statistical population included all the educational organizations involved in the protection of international wetlands in the region, and the statistical sample was based on the targeted method of 19 selected experts working in the field of the CEPA, in the wetlands office of department of environment, department of environment of Sistan and Baluchistan province in Zahedan and department of environment of Zabul, Chabahar and Konarak.

In order to achieve the components of the blended learning model of educational organizations in the CEPA, as well as their prioritization, it is necessary to act based on the specified steps:

**Step 1: Identifying the main components of the model:** In this regard, first in the qualitative section, 10 experts in the field of environmental education and experts from the wetlands office of the department of environment were interviewed to design the model of educational organizations in the CEPA plan.

Considering that the intended educational organizations in the CEPA include schools and universities, and for these beneficiaries, one educational method and style cannot be used, an educational model should be designed that is flexible in addition to considering individual differences can be implemented in different situations. The results of the interview showed that the experts agreed on the use of blended learning to design the educational model of educational organizations in the CEPA. Also, by examining different blended learning models, from the point of view of the experts, the IBM blended learning model had the most convergence with the main components of the CEPA. Therefore, the main components of the model were extracted by combining the dimensions of the IBM blended learning model and the components of the CEPA. The components of the CEPA plan include communication, training, participation and practical action, which converges with the dimensions of the IBM blended learning model, including the dimension of learning through interaction, learning through information, learning through collaboration, and learning through order; Therefore, the first main component was named "communication and interaction", the second component was "education and information", the third component was "participation and cooperation" and the fourth component was "regular and sustainable practical action". Figure 1 shows the integration of the components of the CEPA with the dimensions of the IBM blended learning model.



**Figure 1.** The integration of the components of the CEPA and the dimensions of the IBM blended learning model

**Step 2: Using the Q method to determine the key microcomponents of the model:** In this regard, first, based on the Q method, the research topic and the discourse space were created. The space of discourse is said to collect everything that has been brought about the subject of research in different formats. For this purpose, two groups of sources were used: a) First-hand sources: including conducting structured interviews with experts who played a

significant role in developing the CEPA plan of Sistan and Baluchistan International Wetlands. b) Second-hand sources: including interviews, plans, scientific sources, library studies, various articles and reports available in the field of educational design, blended learning and CEPA plan. The necessary propositions were extracted by summarizing the discourse space, which are called Q phrases. In this step, 110 propositions were extracted by the researcher from first and second hand sources.

Step 3: Selection of Q phrases: propositions were provided to the experts for screening and the interview process continued until the theoretical saturation of the data, so the desired data reached the saturation level of 10 experts. After removing reiterative and unrelated items, 51 Q phrases were selected from among 110 propositions to determine the key micro-components of the blended learning model of educational organizations. Then 51 microcomponents were homogeneously and optionally classified by experts into 4 Q categories so that each microcomponent could be placed in one or all 4 categories.

Step 4: Selection of participants and sorting (scoring of Q phrases): In this step, the selection of participants was performed purposefully and the criterion was their expertise in the field of research, their close connection with the research subject, having years of services and high experience. Accordingly, the participants were selected from 19 experts who played a key role in developing the CEPA plan, and 51 Q phrases were made available to them in the form of an online questionnaire to score the phrases. The way of sorting Q phrases was performed in several steps virtually (using pressonline).

Due to the conditions of Covid-19 and the lack of access to the participants in the Hamoon wetland basin and the environmental organization of Sistan and Baluchistan province, the method of completing the Q diagram was explained virtually first by holding an online collaborative workshop in the Sky Room and the presence of all participants, and then the link of the online questionnaire was sent.

The questionnaire included 51 Q phrases, which the participants rated the set of phrases in a normal distribution of phrases that have the highest priority from the respondent's point of view in the blended learning model of educational organizations (5+) to the phrases that have the lowest priority (-5). In this research, the distribution of phrases was optional, in the sense that the participants were asked to place the phrases in a range by their choice. Finally, 14 microcomponents among 51 Q phrases were prioritized. Table 1 shows the prior micro-components and main components and their resources.

**Table 1.** Prior micro-components and the main components and their sources.

| No. | Microcomponents   | Main component | References  |
|-----|---|----------------|---|
| 1   | Development of education network  | 1              | Ajam et al ,(2017)                                      |
| 2   | Development of effectiveness training                                       | 3 & 4          | Sinai et al ,(2018)                                     |
| 3   | Organization of educational plans   | 1& 2           | Salehi Imran & salari ,(2012)                           |
| 4   | Motivate participation  | 1              | Interview with experts and Khoshnoudi Far et al ,(2019) |
| 5   | Past and present connections for local economy and environmental protection | 1& 2           | Upadhaya,(2016)   |
| 6   | Using different learning styles   | 4              | Interview with experts and Najafi ,(2019)               |
| 6   | Establishing the environmental approach                                     | 3 & 4          | Interview with experts and Sinai et al. (2019)          |
| 8   | Development of the teaching/learning process                                | 4 & 2          | Soleimani et al ,(2016)                                 |
| 9   | Developing a collaborative approach   | 3              | Interview with experts and Abedi & Abedinzadeh (2021)   |



|    |  |       |  |
|----|--|-------|--|
| 10 | Comprehensive and effective decision making in sustainable operation | 3 & 4 | Abedi and Hosseini (2020)  |
| 11 | Impact on formal and informal norms                                  | 4     | Pandict,(2015)   |
| 12 | Creating a learner-centered strategy                                 | 4     | Karimi Monaghi & Mohsenizadeh , (2019)                           |
| 13 | Make information understandable and meaningful                       | 3 & 4 | Asfijani ,(2018)   |
| 14 | Collaborative and interdepartmental management                       | 3     | Interview with experts, Karimi AND Monghi & Mohsenizadeh ,(2019) |

Step 5: Statistical data analysis: The final step is dedicated to the analysis of the collected data and the interpretation of the extracted factors. Second-order factor analysis was used to analyze the data collected from the responses of the participants.

The Q factor analysis process includes two stages of extraction. Factors as a first step and then their rotating to optimize factor loadings and groupings (factors and participants affected by them), so that they are interpretable. The output of the software represents the factorial data analysis to determine the main components and key micro-components from the participants' point of view in order to design the model of combined training of educational organizations and to answer the first and second research questions. In order to answer the third question, validation of the collected data was performed using SPSS22 and Amos software. In this research the opinion of experts was used to obtain nominal validity. According to the opinions of 10 experts in the online interview after finishing the sorting of Q categories, it can be said that the validity of the study, meaning the comprehensiveness of the selected statements was certifiable. For sorting Q, reliability cannot be proposed in its conventional form, because naturally, people's mentality and perspective can change over time. In this research, to measure the reliability of the questionnaire made by the researcher, Cronbach's alpha coefficient was calculated by completing the questionnaire by 30 people, and its value was 0.91 for 51 Q phrases.

## Result

The findings of the research are presented in two descriptive and inferential parts. In the first part, the demographic information of the participants, and in the second part, the quantitative analysis of the data are presented.

### - Descriptive Analysis

The findings of the research indicated that out of a total of 19 experts, 12 of the respondents (63.2%) were women and 7 (36.8%) were men.

Based on the highest frequency, 11 respondents (57.9%) had a master's degree, 4 respondents had a bachelor's degree (21.1%), and 4 had a Ph. D degree (21.1%).

### Quantitative Analysis

In order to answer the first research question, KMO and Bartlett tests were performed to determine whether the main obtained components are suitable for factor analysis or not. The two KMO and Bartlett tests in factor analysis allow researchers to make sure of sufficiency of sample size and the presence of sphericity in the variables before performing the exploratory factor analysis, and then use the factor analysis. The KMO index should be between 0.5 and 0.8 (Habibi and Kolahi, 2022). Table 2 shows the results of these tests for the main components of the model.

**Table 2.** Results of KMO and Bartlett test performed on the main components of the model

| Q Category | Main component                | Amount of KMO | Bartlett's test value | Significance level |
|------------|-------------------------------|---------------|-----------------------|--------------------|
| 1          | Communication and interaction | 0.63          | 43.36                 | 0.05               |
| 2          | Education and information     | 0.73          | 49.36                 | 0.02               |
| 3          | Participation and cooperation | 0.62          | 30.81                 | 0.000              |
| 4          | Sustainable practical action  | 0.52          | 37.56                 | 0.001              |

The value of KMO indicates the appropriateness of the principal components for factor analysis. Also, the value of Bartlett's test was significant at the 99% confidence level; therefore, 51 Q phrases were classified in the above four categories with the opinion of experts, and the main components of the blended learning model of educational organizations in the CEPA plan were determined.

The KMO value for the category of communication and interaction was 0.56, the category of education and information was 0.53, the category of participation and cooperation was 0.47, and the category of sustainable practical action was 0.63, indicating the appropriate state of the data for factor analysis. Also, the value of Bartlett's test for communication and interaction category was 48.14, education and information category was 41.34, participation and cooperation category was 38.76 and sustainable practical action category was 29.38 in 99% significant confidence.

In the next step, the Q method was used, in order to answer the second question of the research and determine the key micro-components in the combined training model of educational organizations. Based on the Q method and the opinion of the participants, 14 micro-components out of 51 Q phrases were selected as the key micro-components of the blended learning model of educational organizations. Table 3 shows the factor loading of each microcomponent along with its main component.

**Table 3.** The factor loading of the key micro-components of the blended learning model of educational organizations

| No. | Microcomponents  | Factor loading | Main component |
|-----|--|----------------|----------------|
| 1   | Development of education network   | 0.81           | 1              |
| 2   | Development of effectiveness training                                      | 0.80           | 3 & 4          |
| 3   | Organization of educational plans  | 0.87           | 1 & 2          |
| 4   | Motivating the participation   | 0.95           | 1              |
| 5   | Past and present connections of local economy and environmental protection | 0.86           | 1 & 2          |
| 6   | Using different learning styles  | 0.82           | 4              |
| 7   | Establishing the environmental approach                                    | 0.69           | 3 & 4          |
| 8   | Development of the teaching/learning process                               | 0.83           | 2 & 4          |
| 9   | Developing a collaborative approach  | 0.85           | 3              |
| 10  | Comprehensive and effective decision making in sustainable operation       | 0.84           | 3 & 4          |
| 11  | Impact on formal and informal norms  | 0.83           | 4              |
| 12  | Creating a learner-centered strategy                                       | 0.80           | 4              |
| 13  | Make information understandable and meaningful                             | 0.77           | 3 & 4          |
| 14  | Collaborative and interdepartmental management                             | 0.82           | 3              |

In Table 4, by analyzing the data, the micro components explaining the most changes in the four main components were determined. Microcomponents were accepted whose eigenvalue was greater than 1. Table 4 shows the number of extracted factors, their eigenvalues, the percentage of variance of each, and the cumulative frequency of variance of the factors.

**Table 4.** Extracted factors regarding the determination of the most changes in the main four components of the combined education model of educational organizations

| Qcategory                    | Factor | Eigenvalues | The percentage variance of the eigenvalue | Cumulative percentage of variance |
|------------------------------|--------|-------------|---|-----------------------------------|
| Communication & interaction  | First  | 1.97        | 49.41                                     | 49.41                             |
|                              | Second | 1.02        | 25.70                                     | 75.21                             |
| Training & information       | First  | 1.31        | 43.78                                     | 43.78                             |
| Participation & cooperation  | First  | 1.79        | 29.93                                     | 29.93                             |
|                              | Second | 1.48        | 24.67                                     | 54.60                             |
|                              | third  | 1.16        | 19.45                                     | 74.06                             |
| Sustainable practical action | First  | 2.26        | 37.69                                     | 37.69                             |
|                              | Second | 1.35        | 22.58                                     | 6.28                              |

From the results of Table 4, two factors explained 75% of the changes in the main component of communication and interaction, one factor explained 44% of the changes in training and information, three factors explained 74% of the changes in participation and cooperation, and two factors explained 60% of the changes in sustainable practical action and the names of the factors were presented in Table 5 after the rotation to explain the variance of the blended learning pattern of educational organizations.

**Table 5.** Naming of factors, roatated factor coefficients found to explain the variance of the blended learning model of educational organizations

| Main component               | Microcomponent   | Factor loading |
|------------------------------|--|----------------|
| Communication & interaction  | Development of education network                                     | 0.80           |
|                              | Organization the education plan                                      | 0.79           |
| Training & information       | Development of the educational process                               | 0.76           |
| Particiapation & cooperation | Collaborative and interdepartmental management                       | 0.88           |
|                              | Make information understandable and meaningful                       | 0.68           |
| Sustainable practical action | Comprehensive and effective decision making in sustainable operation | 0.84           |
|                              | Establishing the environmental approach                              | 0.82           |
|                              | Using a combination of learner-centered styles                       | 0.82           |

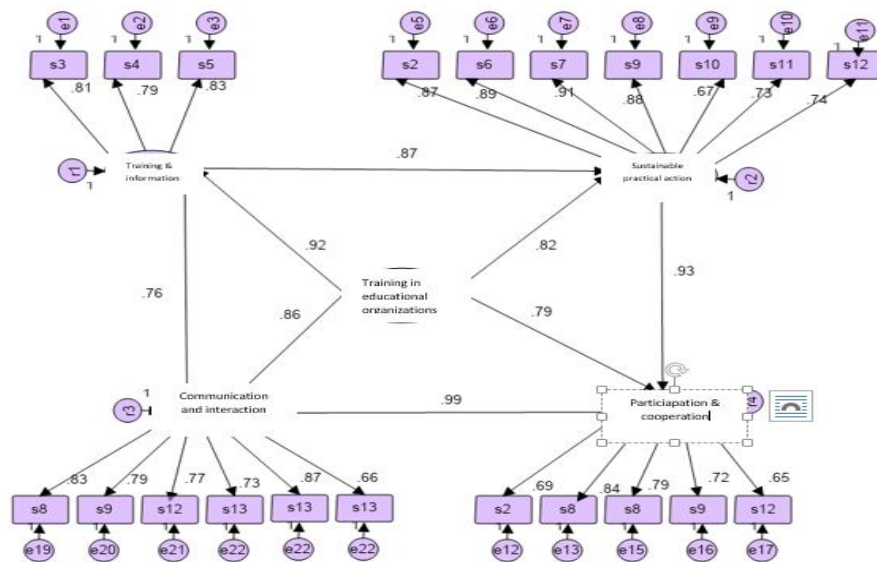
From Tables 4 and 5, in the main component of "communication and interaction", the two sub-components "Education Network Development" and "Education Program Organization" explain 75% of the changes, and the "Education Network Development" micro-component with a factor loading of 0.8 has the largest contribution in explaining the changes in the blended learning model of educational organizations. In the main component of education

and information, a micro-component of "Development of the educational process" explains 44% of the changes and with a factor loading of 0.76 has the largest contribution in explaining the changes in the blended learning model of educational organizations. In the main component of partnership and cooperation, the three factors of "participatory and interdepartmental management", "making information understandable and meaningful" and "comprehensive and effective decision-making in sustainable operation" explain 74% of the changes, which the micro-component of "participatory and interdepartmental management" with a factor loading of 0.88, gained the largest contribution in explaining the changes in the blended learning model of educational organizations. In the main component of sustainable practical action, two factors of "Establishment of environmental approach" and "combined use of learner-oriented styles" explain 60% of the changes, which together with a factor loading of 0.82 gained the most contribution in explaining the changes in the blended learning model of educational organizations.

**Validation of the Blended Learning Model of Educational Organizations**

To answer the third question of the research, validation of the blended learning model of educational organizations in the CEPA was performed for the international wetlands of Sistan and Baluchistan region. The model consists of four observable variables. After implementing this model in the interface, the fitness of the model was studied. However, the pair examination of the relationship between the observed variables and the hidden variable indicates the significance of the relationships between the variables and the fitness of the whole model is acceptable. Theoretical model means a model that was obtained by the researcher based on research literature or qualitative content analysis. The experimental model also means the model that was implemented based on the data collected by the researcher (Abarashi, 2011).

Figure 2 shows the factor loadings of 14 key micro-components with the four main components of the model, as well as the factor loadings of the four main components together, which shows that the relationship between the questions and each studied variable was significant with 95% confidence and 5% error probability.



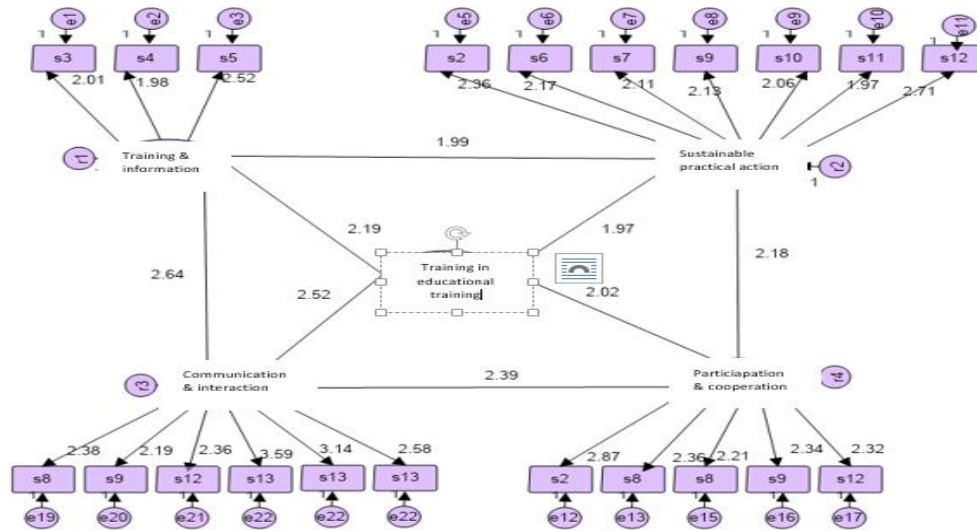
**Figure 2.** Empirical blended learning model for educational organizations in standard estimation mode

In various partial and general fitness indices, such as chi-square and the ratio of chi-square to the degree of freedom ( $P, \chi^2/df$ ), goodness of fitness and modified goodness of fitness (GFI, AGFI), our model enjoy adequate fitness, because chi-square and modified chi are not significant as an absolute fitness index, and this means that there is no difference between the sample matrix and the production matrix based on the theoretical model (Qassem, 2015). Also, comparative indices are also within the acceptable range. In other words, our model is close to the independence model and far from the saturation model.

**Table 6.** Fitness indicators of the experimental model of blended learning model of educational organizations

| Indices     | Desired range   | Value | Result   |
|-------------|-----------------|-------|----------|
| $\chi^2/df$ | $3 > \chi^2/df$ | 3.5   | Approved |
| GFI         | .09 GFI >       | 0.96  | Approved |
| AGFI        | .09 AGFI >      | 0.91  | Approved |
| RMSEA       | .08-.05 RMSEA   | 0.07  | Approved |
| NFI         | .09 NFI >       | 0.89  | Approved |
| CFI         | .09 IFI >       | 0.81  | Approved |
| TLI         | TLI > .09       | 0.78  | Approved |
| CHI         | CHI < 4         | 3.31  | Approved |
| P           | > 0.05 P        | 0.07  | Approved |

Figure 3 shows the factor loadings of 14 key microcomponents with the four main components of the model, as well as the factor loadings of the four main components with each other in a significant state, with 95% confidence and 5% error probability.



**Figure 4.** Empirical blended learning model of educational organizations in significance state

It is clear that the coefficient of the path shows the same value of t, which in the significance state should have a value (coefficient of the path in significance state) greater than the value of 1.96 so that the relationship between each question and the desired variable is significant. In fact, these components are fit when the research questions are explained in true and correct way. Table 7 shows the relationship between the questions and each studied variable with 95% confidence and 5% error probability.

**Table 7.** Standardized coefficients of the studied components

| Path coefficient   | Standard deviation | Standard estimation | Significance level |
|--|--------------------|---------------------|--------------------|
| Blended learning in educational organization → Communication and interactions    | 0.36               | 20.52               | 0.014              |
| Blended learning in educational organization → Training and information          | 0.28               | 2.19                | 0.011              |
| Blended learning in the educational organization → participation and cooperation | 0.33               | 2.02                | 0.013              |
| Blended learning in educational organization → Sustainable practical action      | 0.56               | 1.97                | 0.002              |
| Communication and interactions→ training and information                         | 0.47               | 2.64                | 0.002              |
| Education and information→ Sustainable practical action                          | 0.69               | 1.99                | 0.001              |
| Sustainable practical action → Participation and cooperation                     | 0.74               | 2.18                | 0.001              |
| Participation and cooperation→ Communication and interactions                    | 0.21               | 2.39                | 0.021              |

### Discussion and Conclusion

The present research is to design and validate the blended learning model of educational organizations, especially schools and universities, in the CEPA plan for the protection of international wetlands in Sistan and Baluchistan province. In the first part of the research, the four main components of the model were determined by combining the IBM blended learning model and the components of the CEPA plan, including: "communication and interaction", "training and information", "participation and cooperation" and "sustainable practical action". The results of Table 2 showed the appropriate condition of the components for factor analysis and the value of Bartlett's test was also significant at the 99% confidence level.

In the second part, Q method was used to determine the priority micro-components of the model. First, among 110 propositions, 51 Q phrases were selected by experts. Then, their distribution among the 4 main components was done in a homogeneous and optional way, so that each cue phrase could be placed in one or all four categories. The participants selected and prioritized 14 micro-components out of 51 components to introduce a blended learning model specific for educational organizations. Validation of the model showed that all 14 micro-components have an effect on the changes in the blended learning model of educational organizations. After running the model on the mediator plane, the fitness of the model was evaluated. According to Table 6, the model has sufficient fitness in all partial and general fitness indices. The calculated value for the RMSEA index is also a proof for the fitness of a good model, and the explanatory questions are appropriate, and each of the four main components has been measured in the correct state indicating the acceptability of the model of this research.

According to the T-statistic (2.52), the first question of the research showed that from the participant's point of view, paying attention to the communication and interaction between the beneficiary educational organizations has the greatest impact on the protection of wetlands in the blended learning model of educational organizations. This result is in line with the research results of Quchani et al. (2023), Rotter et al. (2022) regarding that establishing communication between beneficiaries, education, awareness and also holding training sessions are the most important effective factors in protection and support of wetlands. It can be said that the connections between universities and in some cases with schools are a growing supporter for the protection of wetlands. Universities should pay attention to the necessity of protecting wetlands and it should be presented as a general course

on environmental protection in all disciplines. Creating more interaction and communication between the university and schools will accelerate awareness among schools.

According to the factor load (0.95), the second question of the research showed that the micro-component of "creating motivation for participation" which is placed in the category of communication and interaction, has the greatest effect in the blended learning model of educational organizations. Considering that incentive policies are one of the effective factors for motivating cooperative work in local people and communities, this result is in line with the results of Abedi and Gensi (2020), Amini et al. (2021) and Mehdi Nasab (2020). It can be said that the first step in attracting the attention of educational organizations is to create motivation to make the protection of wetlands a priority in education. By holding incentive schemes, non-governmental activities on environmental occasions, educational seminars, brainstorming sessions and educational classes in universities and holding environmental festivals, contests, science camps at the school level, increasing the motivation of the protection of wetlands is possible.

According to the T-statistic (2.64), the strongest relationship between the components of communication and interaction and education and information was obtained, which is in line with the results of Akbari et al. (2021), Sinai et al. (2019), Guan et al. (2015) and Yavari et al. (2018) according to the effect of awareness on the performance of the beneficiaries of wetlands. It is clear that increasing communication between educational beneficiaries is very effective in increasing the level of awareness of protecting the wetlands.

Table 4 shows the micro-components that have the greatest contribution in explaining the changes in the blended learning model of educational organizations. According to the results of Table 4, two micro-components of "educational network development" with a factor loading of 0.80 and "educational plan organization" with a factor load of 0.79 in the component of communication and interaction gained the largest contribution in explaining the changes in the blended learning model of educational organizations. In fact, in line with the implementation of the CEPA plan, communication and interactions between educational organizations will increase with education networking and developing a continuous and sustainable educational plan. Implementing the actions related to raising awareness, promoting education and participation, etc., under a complied and coherent plan and preventing from implementation of scattered actions are emphasized in the goals of the CEPA plan (Sinai et al., 2018). In the CEPA plan, strengthening the inter-departmental communication and cooperation among organizations is one of the main goals (Hesselink, 2006).

In the training and information component "development of educational process" with a factor loading of 0.76 had the largest contribution in explaining the changes in the blended learning model of educational organizations, which is consistent with the results of Mehdi Nesab (2020). She had a significant impact on increasing awareness by examining the attitude of local students regarding the cooperative management of the wetland by receiving blended learning, which is a form of advanced education. Also, Asgaripour et al. (2020) studied the effectiveness of environmental education on the attitude and awareness of the environment in preschool and new school students, and Nohegar (2019) studied the effectiveness of environmental education on first secondary school students which showed that environmental education plays an important role in improving the attitude and awareness of the environment in primary ages. In the component of participation and cooperation, three micro-components of "participatory and interdepartmental management" with a factor loading of 0.88, "making information understandable and meaningful" with a factor load of 0.68 and "comprehensive and effective decision making in sustainable operation" with a factor load of 0.84 found priority which shows that interdepartmental management and attention to the benefit of all beneficiaries is necessary in protecting wetlands. And finally, in the category of sustainable

practical action, two micro-components "establishment of environmental approach" and "combined use of learner-oriented styles" had the most contribution in explaining the learning model of educational organizations. This finding is also in line with the study of Emadi et al. (2017), Najafi (2017) and shows that blended and learner-centered education will have the best results.

In the main component of sustainable practical action, two factors "Establishment of environmental approach" with a factor loading of 0.82 and "combined use of learner-oriented styles" with a factor load of 0.82 had the largest contribution in explaining the changes in the model of blended learning in educational organizations. This finding is also in line with the goals of the CEPA plan and shows that doing work by native people will bring the best results along with learning in a learner-oriented style.

In the next step, the combined training model of educational organizations was implemented in the mediating plane for the purpose of validation, and after that, the fitness of the model was evaluated. The model has sufficient fitness in all types of partial and general fitness indices. The pair examination of the relationship between the observed variables and the hidden variable indicates the significance of the relationships between the variables, and the fitness of the whole model is acceptable. In fact, the questions are suitable explanators and in the blended learning model of educational organizations, each of these four components has been measured correctly.

### **Limitations**

1- It was not possible to choose the priority components by the participants in person and according to the Q diagram due to the conditions of the Covid-19 and the long distance.

2- The number of specialists who participated in the formulation of the plan of the CEPA of Goutare and Hamoon wetlands was limited.

3- The number of studies in the country was very limited due to the newness of the CEPA plan in the protection of wetlands and the lack of development of this plan for all international wetlands in the country.

### **Suggestions**

This research examined a small part of the wide range of beneficiaries involved in the protection of the international wetlands of Sistan and Baluchistan. Therefore, it is suggested to design a training model for other key beneficiaries of the CEPA plan. Also, considering that the CEPA plan has been developed for the international wetlands of Goutare Bay, Khor-Bahu and Hamoon, it is suggested that the present blended learning model should be considered in the implementation phase. It is worth mentioning that the findings of this research will be more widely applicable with some differences in details for the training of the beneficiaries involved in the protection of other international wetlands of the country that are specified in the CEPA plan of each region.

Practical suggestions: finally, in line with the desired implementation of the blended learning model of educational organizations in the CEPA plan, the following practical suggestions have been presented:

1- The Department of the Environment should be in charge of implementing the blended learning model of educational organizations in the region with the help of CIPA experts and the cooperation of universities.

2- According to the results of the second question of the research, it is suggested that in educational organizations that have common interests with the protection of wetlands, environmental trainings should be carried out as in-service and based on blended learning by relevant specialists.

3- Since each area is responsible for some of the problems arisen in the protection of



wetlands, it is recommended that with the capacity that the CEPA plan has in developing cooperation between different stakeholders, it should be prioritized before any action so that different beneficiaries participate in a collective interaction for protecting wetlands even for maintaining their interests.

The research proposals are:

1. In the form of case studies, each of the main components and micro-components should be studied and evaluated separately in more detail.

2. Conducting similar researches in this regard by separating each group of educational organizations (schools and universities) and comparing the results.

3. In a comparative study, the educational model presented in this research should be examined with that of other countries.

The results obtained from this research can be used at micro and macro levels. At the macro level, it is applicable in the comprehensive management plan for the protection of international wetlands, and at the micro level, it is applicable for the training of the educational organizations of the wetlands of each region. In addition, as a reference, it can fulfill the researchers' research needs and those interested in the field of environmental education.

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