MULTILINGUALISM AND AGRICULTURAL INNOVATION: LANGUAGE-BASED APPROACHES IN TRAINING PROGRAMS

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Abstract. *In a world that is becoming more interconnected, the capacity to communicate across a range of different languages holds significant importance, especially in fields like agriculture, where new ideas can greatly improve both productivity and sustainability. The convergence of many languages and agricultural innovation has received notable focus, indicating that approaches which are based on language might play crucial roles in the crafting and spread of training programmes. By making use of the diverse array of languages spoken among agricultural communities, these programmes can be specifically designed to address the unique cultural and contextual needs of distinct groups. Moreover, encouraging multilingual skills among those working in agriculture not only enhances individual capabilities but also contributes to collective empowerment, ensuring that innovations in agricultural practices and technologies are both accessible and understandable for all parties involved. Therefore, the integration of language diversity into training practices is essential for improving knowledge sharing and encouraging inclusive involvement in agricultural advancement productivity. In a world where agriculture is progressively globalised, the phenomenon of multilingualism becomes a critical element regarding innovation and the transfer of knowledge. It involves not just the capability to converse in various languages, but also the intricate cultural and contextual subtleties that are inherent within those languages, which subsequently shape agricultural methodologies and educational frameworks. This diversity in language is significant in training initiatives, especially aimed at smallholder farmers, as it enables a more inclusive spread of sustainable farming methods.*

Keywords*: multilingualism, innovation, language, training, students, approaches, agriculture*

INTRODUCTION

An extensive comprehension regarding agricultural pedagogy is crucial to the Effective communication holds a position of significant importance in the realm of agricultural training programmes, as it possesses direct implications for the transfer of knowledge and methodologies amongst participants. The application of multilingual strategies not only addresses the varying linguistic backgrounds but concurrently augments the accessibility and functional application of agricultural advancements. In areas wherein cultural and linguistic diversity is notably evident, such as that seen within the educational framework of Kirghizia, the capacity to engage in a unified language facilitates cooperation and the sharing of knowledge. The cultivation of communicative competence among educators and learners, a notion underscored in the pedagogical training of foreign language instructors, lays a groundwork for improving understanding and compliance with novel agricultural techniques (ZHAKSHYLYKOV, 2024). Moreover, findings from research suggest that the incorporation of multiple languages has the potential to enhance engagement and motivation levels among learners, thereby creating a more favourable setting for the introduction of innovation and the acquisition of skills, which is especially crucial in the swiftly transforming agricultural environment of the present day (YU ET ALL., 2024). Thus, placing an emphasis on language within training initiatives is vital for fostering both practical competencies and a spirit of collaboration within agricultural communities.

The confluence of linguistic aspects and agricultural innovation is becoming more acknowledged as essential for boosting productivity and promoting sustainability in the

agricultural field. Mastery of local dialects can notably influence how farmers, especially those from migrant backgrounds who may encounter linguistic obstacles, embrace new agricultural methodologies. Illustratively, an analysis of rural-to-urban migrants in China indicates that local dialect proficiency (LDP) is pivotal in nurturing social connections and urban identity, which in turn enhances access to the resources and information necessary for fostering innovation (LI, 2024). In addition, communication strategies that are attuned to linguistic diversity may aid in the propagation of contemporary agricultural practices, thereby ensuring that training initiatives are both reachable and pertinent to varied cohorts (ADNAN, 2024). As a result, the incorporation of multilingual frameworks in agricultural education not only equips farmers with a better comprehension of innovations but also assists in the realisation of wider objectives pertinent to sustainability and food security

MATERIAL AND METHODS

The notion of effective communication stands as a fundamental pillar in the successful dissemination of agricultural knowledge. In contexts characterised by multiple languages, the capability to express concepts and practices in diverse tongues becomes exceedingly critical, as it promotes inclusiveness among a variety of stakeholders.

For this research article we used the comparative and the analysis methods. With a great experience in the field of internationalization and languages, we analysed in several parts of the world, how agriculture and languages merge (PASCALAU ET ALL., 2024) and how important it is in the training programmes. This inclusiveness assumes particular importance when confronting the distinct challenges encountered by agricultural communities, where differing linguistic origins could hinder the transfer of knowledge. Through the provision of foreign languages designed for the agricultural domain, educators can enable a more robust interaction between professionals and local populations. Additionally, the enhancement of language skills is closely linked to advancements in agricultural methods and the stimulation of innovation. As evidenced by the ongoing globalisation of economies, a high degree of proficiency in foreign languages boosts international collaboration and guarantees that agricultural practitioners can interact with global counterparts in a meaningful fashion.

The obstacles engendered by language discrepancies are significantly impactful within the domain of knowledge sharing, particularly in the agricultural sectors of societies characterised by multilingualism. These discrepancies frequently obstruct the efficient relaying of optimal agricultural practices, thus hindering the progress and adoption of innovations at a communal level. As delineated in contemporary research findings, strategies for information dissemination that are considerate of cultural and linguistic diversity, including multilingual computer-generated animated training videos, reveal the capacity to effectively ameliorate these disparities. This sort of modern approach not only caters to the linguistic variation existing in areas such as Africa, but also fortifies understanding across diverse demographic groups. Moreover, the imperative for inclusive educational methodologies is underscored when one contemplates the systemic impediments encountered by minority and underrepresented demographics in their pursuit of essential agricultural information. Consequently, it becomes crucial to confront language barriers via dedicated and meticulously designed educational resources, as this is vital for nurturing agricultural innovation and securing equitable knowledge accessibility amid various communities.

Effective communication within multilingual training environments demands strategies that are specifically designed to cater to an assortment of linguistic backgrounds whilst aiding the transfer of knowledge. For instance, in agricultural training programs, it becomes imperative to incorporate visual aids and hands-on demonstrations, which possess the

potential to overcome language barriers and improve understanding among participants from differing linguistic contexts. Furthermore, the encouragement of an inclusive environment promotes participants to freely exchange insights and pose inquiries, thus enriching the educational experience. A study has been highlighted indicating that a range of educational frameworks support the cultivation of a workforce proficient in precision agriculture to bolster technological progress (SCOTT ET ALL., 2021). This focus on skill enhancement is additionally reflected in the grain markets of Ukraine and China, where the efficacy of communication strategies plays a significant role in shaping marketing strategies for agricultural enterprises (ZHOFAN ET ALL., 2023). Henceforth, the application of focused communication approaches not only amplifies the dissemination of knowledge but also fortifies the overall effectiveness of multilingual training initiatives within the agricultural domain.

RESULTS AND DISCUSSIONS

The accomplishment regarding multilingual agricultural training schemes can be illustrated through projects that leverage indigenous understanding whilst simultaneously integrating modern technological apparatuses. A significant instance of this is the incorporation of mobile phenotyping technologies as elucidated by the Alliance of Bioversity and CIAT, which not merely augmented the precision of data collection but also activated farmers as proactive contributors in the selection of varieties. This method conspicuously alters the conventional paradigm from traditional, frequently hierarchical approaches, towards a more participatory structure that acknowledges local vernaculars and farming customs, consequently nurturing a sense of proprietorship amongst the farming collectives engaged (LASDUN, 2024). Moreover, educational initiatives such as HYPERedu underscore the imperative for resources that maintain accessibility across linguistic boundaries. By offering materials in a variety of languages and formats, HYPERedu guarantees that a diverse array of agricultural stakeholders can proficiently interact with hyperspectral remote sensing technology to bolster their agricultural methodologies (FOERSTER, 2024). Through these illustrations, it is made clear that multilingual training not merely tackles immediate educational requisites but also advances the overarching aim of sustainable agricultural innovation.

The interaction between culture and multilingual training in agriculture is notably critical for the establishment of effective educational frameworks that align with the varied backgrounds of farmers. It is essential to acknowledge that agricultural methodologies are frequently closely linked with cultural identities, leading to the necessity for training initiatives to be customised to cater to these particularities. For example, traditional techniques for water management hold considerable importance in numerous agricultural communities (SMULEAC ET ALL., 2023), and the incorporation of these methods into contemporary practices thereby promotes a sense of familiarity and reverence for indigenous customs (RASTOGI ET AL., 2024). In addition, the foundational concepts of multicultural education, which advocate for the enhancement of ethnic and racial parity, highlight the imperative for training that recognises and celebrates the diverse cultural differences present in agricultural strategies (KHANIPOVA ET ALL., 2017). Therefore, educators have the responsibility to not solely concentrate on imparting technical competencies, but also to foster a deep appreciation for cultural heritage. Such a comprehensive approach ensures that multilingual training schemes transcend mere instructional aims, evolving into transformative experiences that empower farmers to innovate while maintaining their cultural foundations, ultimately leading to the advancement of more sustainable agricultural methodologies.

The understanding of the interaction between local culture and the utilisation of language becomes decidedly pertinent when constructing training programmes that aim to

promote agricultural innovation. It is the case that local culture not only informs styles of communication but additionally impacts the way in which agricultural practices are conceptualised. To illustrate, the specific beliefs and values prevalent within a community can significantly influence the manner in which agricultural information is interpreted and acted upon (BEKELE, 2021). Recent research has underscored that when training efforts employ the vernacular and weave in culturally pertinent examples, there is a notable increase in participant engagement and comprehension, leading to an improvement in the absorption of knowledge and practices (GARG, 2018). This methodology recognises the pivotal role of cultural context in determining language use; it transforms abstract notions of agriculture into concrete ideas that resonate with the lived experiences of participants. In the end, a carefully nuanced curriculum design that integrates local cultural components can markedly enhance the transfer of knowledge and nurture sustainable agricultural practices, thus propelling community development forward.

The act of integrating cultural diversity into training resources stands as a pivotal endeavour for nurturing inclusiveness and augmenting the effectiveness of educational programmes, even more so within the realm of agriculture. Recognising the diverse backgrounds and experiences inherent among participants allows for the crafting of materials that align more closely with their lived realities, which, in turn, serves to elevate both engagement and understanding. Take, for example, the integration of indigenous agricultural practices alongside knowledge specific to the community, which does not merely acknowledge cultural identities but also enhances the applicability and relevance of the training. As illustrated in the project initiatives within Cupak Village, the scope for innovation in agriculture is markedly increased when the instructional content is harmonised with the agricultural methods and cultural frameworks already present in the community (KUSTIWI ET ALL., 2023). Moreover, this process of adaptation necessitates a collaborative dialogue involving local stakeholders to assure that the training embodies and honours a variety of perspectives. In summary, the incorporation of cultural diversity within training resources not only enriches the experiential learning trajectory but also fosters the sustainable advancement of agricultural methodologies that are not just culturally pertinent but also economically sound.

Training programmes that aim to enhance agricultural innovation are notably strengthened through considerable community engagement, which cultivates an environment that is inclusive and favourable for learning. This engagement serves to not only facilitate the exchange of knowledge amongst participants but also to guarantee that the training materials possess cultural relevance and are accessible to speakers of various languages within the community. Research highlights that initiatives such as the Pashu Vighyan Kendra (PVK) Training Programme in Rajasthan serve as a prime illustration of how community involvement is paramount in the augmentation of agricultural knowledge, which in turn bolsters livestock management practices and economic results for farmers (JAISWAL ET ALL., 2024). In addition, when training programmes integrate feedback mechanisms derived from community members, they possess the ability to adjust to the distinctive challenges encountered by different demographic groups, particularly those who identify as neurodivergent or disabled. The creation of inclusive classroom settings, as elucidated in community engagements, contributes to rendering training not only more effective but also more meaningful for all participants, thus enriching the broader discourse surrounding agriculture (ANDREASSEN, 2024).

In the contemporary era, the amalgamation of technological advancements has surfaced as a pivotal force in the realm of multilingual education, especially within the agricultural domain. The utilisation of digital platforms and mobile applications not only serves the purpose of spreading training materials across multiple languages but also amplifies

engagement via interactive content, which in turn addresses varying linguistic requirements. For example, training programmes that are ongoing and that integrate multimedia resources have the potential to significantly enhance the technological proficiency of trainers, a critical component for efficacious knowledge transfer amidst a multilingual audience. Moreover, the application of mobile-centric extension services illustrates the manner in which technology can surmount language obstacles and furnish equitable access to indispensable information, which is vital for the enhancement of agricultural methodologies. By nurturing a learning environment that is inclusive, these technological instruments not only augment the knowledge and capabilities of participants but additionally encourage sustainable agricultural development through the proficient execution of language-oriented training strategies (PASCALAU ET ALL., 2023). Hence, the collaboration between technology and multilingualism is of utmost significance for the enrichment of training programmes and for the attainment of enduring impacts within agricultural innovation.

The melding of digital apparatus and platforms into the realm of multilingual agricultural education has surfaced as an essential approach for the spread of knowledge throughout varied linguistic populations. These technologies enable access to a vast array of information, thus granting individuals situated in rural locales—where conventional educational assets may be lacking—the ability to engage substantially with current agricultural methodologies. Particularly significant is the function of online learning technologies in rectifying educational discrepancies, as evidenced in (STAN ET ALL., 2024), which clarifies how these instruments promote skill acquisition and awareness regarding modern agricultural predicaments. Moreover, the need for multilingual strategies within these platforms is of utmost importance, given that proficient communication of agricultural principles is crucial for joint innovation across national borders. As delineated in (PAȘCALĂU ET ALL., 2023), a comprehensive comprehension of multiple languages improves access to essential research and technological innovations, which ultimately accelerates agricultural advancement and guarantees that various communities can both partake in and reap benefits from international agricultural initiatives.

The incorporation of mobile technology into training schemes has significantly altered the way language accessibility is approached, thus promoting wider involvement among learners who speak multiple languages. A case in point would be the AquaSafe application, which illustrates how mobile technology can provide intuitive interfaces to aid in the identification and management of risks within aquaculture contexts (SMULEAC ET ALL., 2022), effectively engaging individuals who might otherwise be impeded by language barriers (CHATZIANTONIOU ET ALL., 2023).

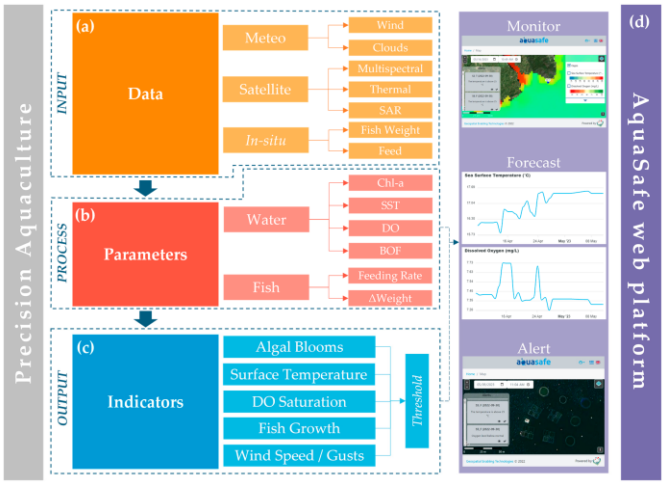

Fig. 1. Aquasafe structure and the four main pillars: (**a**) input data, (**b**) parameters, (**c**) indicators, and (**d**) Aquasafe web-based platform. (Chatziantoniou et all., 2023).

Additionally, e-learning projects delineated by (S. Ng et al., 2021) underscore that adaptable learning environments can be geared towards varied linguistic requisites, supplying resources in numerous languages and bolstering the inclusivity of medical education. As a result, the surge in mobile technology contributes to a more just training environment, ensuring that language acts not as an obstacle to accessing crucial knowledge, thereby furthering the primary aim of fostering multilingualism within agricultural advancements. Through the utilisation of mobile applications, educators can disseminate educational material that surpasses linguistic limitations, permitting users to interact with content in their primary languages (BIRO ET ALL., 2023).

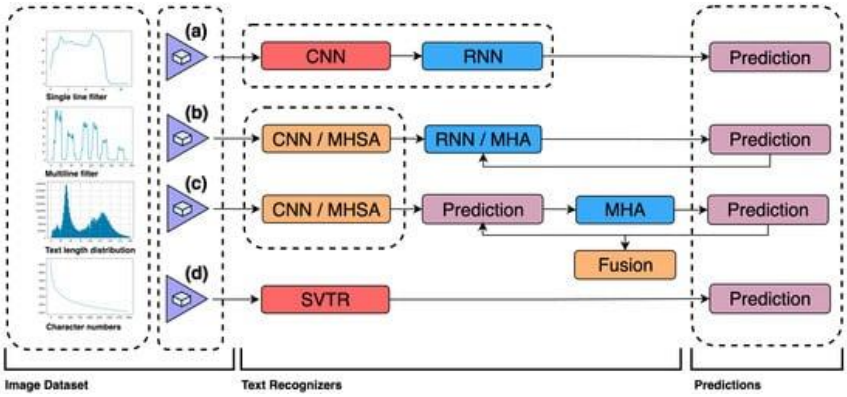

Fig. 2. Dataset preparation for real-time OCR, (Biro et all., 2023) https://www.mdpi.com/2076-3417/13/24/13107

CONCLUSIONS

The incorporation of technology within agricultural training schemes represents a significant progression in addressing language obstacles that have historically obstructed communication within this domain. Utilising instruments that provide real-time translation

alongside adaptable learning systems, technology aids in the sharing of knowledge across linguistic boundaries, thus guaranteeing that essential information is transmitted to varied audiences. As the necessity for proficiency in multiple languages escalates within the agri-food arena, effective technological solutions are rendered imperative for the promotion of collaboration amongst international participants. The strategies that could be implemented to assist language experts, underlying the evident requirement for customised methods to tackle the intricacies of agricultural discourse, must be very clearly settled. Moreover, one need to pay attention to the distinct difficulties confronted by agricultural professionals in mastering foreign languages, accentuating the demand for novel technological solutions that bolster language learning. In conclusion, an appraisal of these technologies indicates their considerable potential to greatly improve comprehension and collaboration in agricultural innovation, thereby emphasising the importance of sustained investment and exploration in this field.

The outcomes derived from this inquiry accentuate the vital significance of multilingualism in the promotion of agricultural innovation and the enhancement of training schemes aimed at farmers. By placing an emphasis on methodologies centred around language, educational initiatives hold the potential to markedly augment the accessibility of information and resources that are customised to cater to various linguistic demographics, which, in effect, may culminate in more proficient agricultural methodologies. For example, the deployment of e-governance methodologies within the European Union exemplifies how the utilisation of technology can streamline communication and interaction with citizens, subsequently augmenting their involvement in agricultural progression. Moreover, the progress of mobile phenotyping technologies as denoted in the realm of crop breeding permits the amalgamation of farmer inclinations, thereby assuring that innovations are in alignment with the needs of those who are intended to reap the benefits. Such advancements serve to delineate that a dedication to multilingual training is not simply a theoretical aspiration but rather a pragmatic imperative for confronting the urgent issues that besiege the agricultural domain, particularly in the context of climate change and the global demands for food security.

The conjunction of multilingualism with agricultural innovation unveils essential insights pertaining to the effectiveness of language-oriented methodologies in training initiatives. Contemporary investigations accentuate the notion that the utilisation of multiple languages within educational frameworks markedly improves the transmission of agricultural knowledge, especially in multicultural environments where various linguistic heritages are present. This observation holds particular significance for the enhancement of digital competencies among agricultural educators, as delineated in the findings relating to the impact of external factors on the integration of digital teaching practices in China. Additionally, effective e-governance frameworks, exemplified by recent progress within the European Union, highlight the essential function of communication technologies in facilitating agricultural practices that transcend linguistic divides, thus nurturing collaboration among various stakeholders. By acknowledging these aspects, it becomes evident that multilingual training serves not only to empower farmers but also to foster a more inclusive ecosystem of agricultural innovation, which, in turn, contributes towards the advancement of sustainable agricultural methodologies and regional progress.

Future investigations ought to be directed towards the optimisation of multilingual instructional schemes within the realm of agricultural innovation through the exploration of an array of pedagogical methodologies that accommodate disparate linguistic backgrounds. It is pivotal to underscore the importance of collaborative and co-created citizen science ventures, which may engender enhanced community involvement and bolster the transfer of knowledge pertaining to agricultural methodologies. Moreover, it is of great significance to evaluate the

digital proficiency of educators engaged in these training initiatives, particularly referencing the frameworks elucidated in. Such assessments would provide insight into the formulation of customised professional development programmes aimed at augmenting the ICT competencies of educators, thereby ensuring their capacity to proficiently execute innovative training modules. Additionally, the investigation of the incorporation of cultural subtleties into curriculum frameworks could further assist multilingual learners, thus promoting a more inclusive educational context. Taken together, these suggestions underscore the imperative of interdisciplinary cooperation among researchers, educators, and practitioners to propel the potentiality of multilingual strategies within agricultural innovation.

The agricultural quandaries that are increasingly intricate call for novel approaches that go beyond traditional methods. Utilising a multilingual framework in agricultural training initiatives has the potential to markedly boost productivity and sustainability through the facilitation of varied knowledge systems and practices being exchanged. By integrating local dialects with more prevalent languages, these initiatives may engage farmers more effectively, thus enabling a dialogue that is more inclusive and acknowledges cultural contexts alongside local know-how. Furthermore, the presence of this linguistic variety aids in the spread of leading-edge research whilst ensuring that sustainable methodologies are crafted to meet specific regional demands. As such, strategies that employ multiple languages foster a vibrant setting in which agricultural innovation can flourish, with varied communities offering their distinctive insights into modern dilemmas. In conclusion, the amalgamation of several languages within agricultural education not merely expands access to pertinent information but also nurtures collaboration across linguistic and cultural divides, thereby bolstering the resilience of agricultural systems amidst global challenges.

ACKNOWLEDGEMENT: Support was also received by the project Horizon Europe (HORIZON) 101071300 - Sustainable Horizons -European Universities designing the horizons of sustainability (SHEs).

BIBLIOGRAPHY

ALKA T.A., 2024, "Seeds of Change: Mapping the Landscape of precision farming technology adoption among agricultural entrepreneurs"

ADNAN M., 2024, "Human inventions and its environmental challenges, especially artificial intelligence: New challenges require new thinking". https://www.sciencedirect.com/science/article/pii/S2667010024001422

BALSCHWEID M.A., 1998, "Agriculture and Science Integration". https://www.sciencedirect.com/science/article/pii/S1658077X24000833

BEKELE W.B, 2021,"Assesing the role of media in economic development of the community: the case of the south radio and television agency, Bonga branch in Decha woreda, southern Ethiopia". https://www.semanticscholar.org/paper/a54bc5e21efca37bdafc7fe4a624f781db3fbb8a

BIRÓ, A., SZILÁGYI S. M., & SZILÁGYI L., 2023, "Optimal training tataset preparation for AI-supported multilanguage real-time OCRs using visual methods", Applied Sciences, 13(24), 13107. https://doi.org/10.3390/app132413107

CHATZIANTONIOU, A., PAPANDROULAKIS, N., STAVRAKIDIS-ZACHOU, O., SPONDYLIDIS, S., TASKARIS, S., & TOPOUZELIS, K., 2023, "Aquasafe: A Remote Sensing, Web-Based Platform for the Support of Precision Fish Farming. Applied Sciences, 13(10), 6122. https://doi.org/10.3390/app13106122

ENGIDA T., 2014, "Professional development using th e technological pedagogical content knowledge (tpack) framework".

https://www.semanticscholar.org/paper/c2caa56724aed38d69bf40c7bc4a9266049b2554

FOERSTER S., 2024, "Hyperedu online learning program for hyperspectral remote sensing: Concept, implementation and lessons learned". https://www.sciencedirect.com/science/article/pii/S1569843224003376

GARG V., 2018, "Opportunity for Startups and Entrepreneurship". 6. pp. 3047-3050. https://www.semanticscholar.org/paper/d0087d01c9184f412218cd64bee4b886ac36a9

GEORGIEVA T., GRAU Y., BEROVA M., GEORGIEVA R., YORDANOV Y., 2021, "Innovations in the professional education of teachers and trainers in the field of sustainable agriculture development". Agricultural Academy, 27 (Suppl. 1). pp. 61-70. http://www.agrojournal.org/27/01s-08.pdf

JAISWAL U.K., MANGAL S.C., KUMAR R., 2024, "Analyzing the impact of PVK training program on farmers in Rajasthan: A comprehensive evaluation". https://www.semanticscholar.org/paper/398e5f7f90ef81ba65554926e4fa07e5366e2a0b

KHANIPOVA R., SABIROVA D., TITOVA N., VORONINA E., 2017, "Teaching foreign languages in multicultural environment of us schools: challenges and prospects". pp. 2158-2165. https://www.semanticscholar.org/paper/762b5dac71a728a95091000397bfd603d0c27040

LASDUN V., DAVÍD G., BERTA ORTIZ-CRESPO B., MUTUVI S., SELVARAJ M., TESHALE ASSEFA T., 2024, "Participatory AI for inclusive crop improvement". https://www.sciencedirect.com/science/article/pii/S0308521X2400204X

LI Z., YAO S., 2024, "Do languages matter? The impact of local dialect proficiency on multidimensional poverty alleviation among rural-to-urban migrants in China". https://www.sciencedirect.com/science/article/pii/S0264275124003081

MACINTOSH K.A., 2024, "A 10-year evaluation of management practices and nutrient losses from dairy farms in New Zealand – Trends and drivers". 377(N/A). https://www.sciencedirect.com/science/article/pii/S0167880924003797

MARQUES F., G.B., DOS SANTOS B.G,T., ADEOYE A., BRITO B., BRITO K., BUKETOV K., CAZELLA S., FERMINO M.H., HELLEBRANDT L., JEEBHAY M., MITCHELL R.J., NGAJILO D., WATTERSON A., CAVALLI L., 2020, "AquaSafe: Aquaculture occupational safety and health in the palm of your hand". 26. pp. 46-54.

MEHAR R., RANI S., 2018, "Effect of Interactive Whiteboard Technology on achievement in English in Relation to Linguistic Aptitude". https://www.semanticscholar.org/paper/a75d0bdc91cb21393f22e81c590dd33d79a87308

NATEGHIAN N., 2024, "English language needs of Iranian students of civil engineering: Are the courses aligned with workplace needs?". 76(N/A).

NGUYEN H., NGUYEN V. D., 2022, "Enhancing student employability: A mixed-methods study into work-integrated learning curricula in Vietnamese universities". International Journal of Work-Integrated Learning, Vol 23, Issue 3. pp. 405-425. https://www.ijwil.org/files/IJWIL_23_3_405_425.pdf

PARRA-LÓPEZ C., 2024, "Integrating digital technologies in agriculture for climate change adaptation and mitigation: State of the art and future perspectives". 226(N/A). https://www.sciencedirect.com/science/article/pii/S0168169924008032

PAȘCALĂU R., ȘMULEAC L.,MILANCOVIC S., STEIGELBAUER L., PĂDUREAN A., BĂRBULEȚ G., 2023, " Importance and impact of modern languages and education in agriculture". Research Journal of Agricultural Science, Vol 55, Issue 3.

PAȘCALĂU R., ȘMULEAC L., STIEGELBAUER L.R., SABĂU G.D., MILANCOVIC S., PADUREAN A., BĂRBULEȚ G., , BIRMA M., JURAKHONZODA R., 2024, "Particularities of Teaching Foreign Languages to Agriculturists". 56 (1). pp. 145-147. https://rjas.ro/download/paper_version.paper_file.ad0ba83b3bf11fcf.Ui4gUEFTQ0FMQVUtIFBhcnRpY3VsYXJpdGllcy5wZGY=.pdf

PASCALĂU R., SMULEAC L., STANCIU S., IMBREA F., SMULEAC A., 2023, "Leveraging modern languages and translations for sustainable environmental practices", International Multidisciplinary Scientific GeoConference: SGEM; Sofia, Vol. 23, Iss. 4.2, DOI:10.5593/sgem2023V/4.2/sl9.36

PATRA N. C., 2021, "Recent Advances in Accreditation Systems in Higher Agricultural Educational Institutes (HAEI) in India: A Review". https://www.semanticscholar.org/paper/b359848dc0323c5be47919a8ffe954716fd9a28f

PINKERTON M.,, FREY C., THOMPSON S., HODGES A., 2021, "Expanding the Curricula for Florida's Youth: Outreach Efforts in Agricultural Literacy". Oxford University Press on behalf of Entomological Society of America, 12(1). pp. 21-29. https://academic.oup.com/jipm/article,pdf/doi/10.1093/jipm/pmab016/37934299/pmab016.pdf

RASHID A.B., 2024, "AI revolutionizing industries worldwide: A comprehensive overview of its diverse applications". https://www.sciencedirect.com/science/article/pii/S2773207X24001386

RASTOGI M., KOLUR S.M., BURUD A., SADINENI T., SEKHAR M., KUMAR R., RAJPUT A., 2024, "Advancing Water Conservation Techniques in Agriculture for Sustainable Resource Management: A review". https://www.semanticscholar.org/paper/454d35f864132eb4d1eacc652ce7e907cf085e78

SHAH H.S., (2018). "TAGORE & HIS CONTRIBUTION IN THE FIELD OF EDUCATION". https://www.semanticscholar.org/paper/2c08f82a158576edf74d989014474ddb07a5958c

SCOTT F., ERICKSON B., CLAY D., CLAY S., 2021, "Is the Custom Service Industry's Role in Precision Agriculture Linked to Workforce Development?" https://www.semanticscholar.org/paper/936b7a37257bfee7b5dbdd4b8c7efccab5645ba0

STAN M., CIOBOTEA M., 2024, "Online learning technologies and sustainable rural development: an European perspective". Vol. 24, Issue 2. pp. 875-877. https://managementjournal.usamv.ro/pdf/vol.24_2/Art96.pdf

SMULEAC L., PAȘCALĂU R., SMULEAC A., IMBREA F., LATO A., "The interconnection between preventing water pollution and addressing climate change", International Multidisciplinary Scientific GeoConference : SGEM; Sofia, Vol. 23, Iss. 3.2, (2023). DOI:10.5593/sgem2023V/3.2/sl2.27

ȘMULEAC A, ȘMULEAC L, PAȘCALAU R., POPESCU G., HORABLAGA, A., 2022, "Using ground control points (GCP) and UAV Poind Cloud processinf in water management", International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM, 2022, 22(3.2), pp. 231–238.

TSVETKOVA M., SULEIMENOV Z., KONDRATENKO L., STEPANOVA D., 2021, "Study of the System of Scientific and Scientific-Technical Activities of Agrarian and Economic Universities". iJEP, Vol. 11, No. 3. pp. 131-135. https://doi.org/10.3991/ijep.v11i3.20541

ZHOU Y.,, YUNFEI MA Y., 2016, "A Practical Exploration of the Training of Foreign Language Personnel of Agricultural Foreign Trade".

Zhakshylykov B., 2024, "Professional Training of Foreign Language Teachers in Kirghizia: The Aspect of Communicative Competence". ● https://www.semanticscholar.org/paper/38150795b722e1923950c3badc59f31b2da26ff0

ZHOFAN I., PASHCHENKO O., ZHARIKOVA O., 2023, "Development of the marketing strategy of agricultural sector enterprises on the grain markets of Ukraine and the people's republic of China". https://www.semanticscholar.org/paper/6462f87b46cd9cd4bc3d3d50daf7dbd4ac8061

YU M., MING Z., 2024, "Research on the reform of C language programming teaching based on the training of new engineering talents". https://www.semanticscholar.org/paper/289dc4950ef97b3c41ffc0d2df4177f1375b1ce4