DOI:

PRIMENA KONCEPTA MKPB MODULA ZA SPROVOĐENJE TRANSDISCIPLINARNOG NAUČNOG PRISTUPA U POSLEDIPLOMSKOM MEDICINSKOM OBRAZOVANJU

APPLICATION OF THE MKPB MODULE CONCEPT FOR IMPLEMENTING A TRANSDISCIPLINARY SCIENTIFIC APPROACH IN POSTGRADUATE MEDICAL EDUCATION

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SAŽETAK

Postojeći model obrazovanja kadrova u oblasti uticaja životne sredine na zdravlje čoveka, karakteriše izrazita stručna i sektorska fragmentacija. Umesto da integriše sve pozitivne aspekte multidisciplinarnosti, interdisciplinarnosti i transdisciplinarnosti, trenutni model često favorizuje uskostručne pristupe. Ova fragmentacija je prisutna između različitih naučnih i stručnih oblasti - biologije, hemije, poljoprivrede, medicine, inženjerskih nauka, ali i ekonomije, prava i društvenih nauka. U takvom okviru, stručnjaci iz različitih disciplina često pristupaju problemima isključivo iz perspektive svojih struka, boreći se za „svoj deo kolača“, što rezultira uskim i jednostranim tumačenjima problema. Ovaj pristup neretko stvara nove izvore sukoba među stručnjacima, jer se različite struke međusobno ne prepoznaju kao komplementarne, već kao konkurentske, što dodatno otežava efikasno rešavanje složenih problema. Takva fragmentacija je posebno problematična kada je reč o pitanjima životne sredine, jer ona zahteva celovit pristup. Zdravstveni problemi izazvani faktorima iz životne sredine, kao što su zagađenje, klimatske promene, izloženost štetnim materijama ili nanočesticama, uticaj socijalnog okruženja itd. ne mogu se adekvatno razumeti i rešavati ako se razmatraju parcijalno, iz ugla samo jedne naučne discipline. Životna sredina je sveobuhvatan sistem, i sveobuhvatni problemi koji iz nje proističu moraju biti tretirani integrisano - uzimajući u obzir sve relevantne aspekte koji mogu doprineti rešavanju tih problema. Za realizaciju poslediplomskih studija u ovoj oblasti neophodna je transdiciplinarna saradnja između različitih disciplina, ne samo na nivou razmene informacija, već kroz aktivno povezivanje i preplitanje različitih metodologija i perspektiva kako bi se došlo do inovativnih i održivih rešenja. Obim različitih rizika po životnu sredinu i zdravlje čoveka, koji nastaju u savremenom društvu, svakog dana je sve veći. Tako se danas kao glavni faktori uticaja na zdravlje ljudi pojavljuju neki rizici koji pre samo par godina ili desetina godina nisu ni postojali. Iz istih razloga pristup temi rizika po životnu sredinu i zdravlje čoveka postao je problematičan i u razvijenim zemljama. U nizu kritičnih situacija nastalih u oblasti zaštite životne sredine i zdravlja čoveka, različite državе nisu imale adekvatne odgovore na nastale probleme. Kao na primer u slučajevima sve češćih vanrednih situacija (poplave, akcidenti u industriji i saobraćaju itd.), aerozagađenja, novih rudarskih postrojenja, COVID, neadekvatne bezbednosti hrane, zavisnosti od interneta, društvenih kriza itd. Jedan od glavnih razloga tome bio je upravo nedostatak odgovarajućih stručnjaka koji bi na pravi način mogli da sagledaju ove probleme i ukažu stanovništvu i državnim aparatima kako treba ispravno postupati. Analizom navedenih problema ustanovili smo da postoji potreba da se kroz obrazovni sistem stvore stručnjaci koji će, usvajanjem transdisciplinarnih znanja, na adekvatan način moći da odgovore svim savremenim izazovima u oblasti zaštite životne sredine i zdravlja stanovništva. Postojeći obrazovni modeli, u okviru poslediplomske edukacije lekara, nisu u stanju da proizvedu takve stručnjake pa je neophodno sprovesti transformaciju obrazovnog procesa u ovoj oblasti i to direktnom intervencijom u konceptu učenja usvojen primenom MCPB modula, a kroz primenu problem based blended learning blocks modula sa integrisanim transdisciplinarnim znanjima(TransBlox), a koji će dopunjavati teorijsku i praktičnu nastavu u okviru Blended learning kurseva na Moodle platformi. U okviru ovih modula, nakon uvodnog teksta u kojem se postavlja problem i istraživački cilj, svaki naredni korak će uključivati vođena pitanja prilagođena rešavanju postavljenog problema. Ova pitanja će biti interaktivno dizajnirana, s mogućnošću biranja ponuđenih odgovora ili unošenja odgovora u predviđena polja. Odgovarajući na vođena pitanja, student će postupno identifikovati ključne komponente koje treba razjasniti i, prateći logičan sled pitanja, učiti kako da sistematski rešava problem. Korišćenje unapređenih modula omogućuje integraciju transdosciplinarnih znanja u nastavne kurikulume poslediplomskih studija i maksimalnu objektivnost u praćenju nastave i ocenjivanju, kao i transparentnost i demokratičnost celokupnog nastavnog procesa.
Ključne reči: Transdisdiplinarnost, meta-kognicija, poslediplomsko obrazovanje lekara

ABSTRACT

The existing model of training professionals in the field of environmental impacts on human health is characterized by pronounced professional and sectoral fragmentation.
Instead of integrating the positive aspects of multidisciplinarity, interdisciplinarity, and transdisciplinarity, the current model often favors narrow professional approaches. This fragmentation occurs across various scientific and professional domains - biology, chemistry, agriculture, medicine, engineering, as well as economics, law, and the social sciences. Within such a framework, professionals from different disciplines tend to approach problems exclusively from the standpoint of their respective fields, competing for their own “share of the pie,” which results in narrow and one-sided interpretations. This approach frequently generates new sources of conflict among experts, as different disciplines do not recognize each other as complementary but rather as competing, further hindering the effective resolution of complex issues.
This fragmentation is particularly problematic when it comes to environmental issues, which inherently require a holistic approach. Health problems caused by environmental factors—such as pollution, climate change, exposure to harmful substances or nanoparticles, and the influence of the social environment—cannot be adequately understood or addressed if viewed only through the lens of a single scientific discipline. The environment is a comprehensive system, and the complex problems that arise from it must be addressed integratively—by taking into account all relevant aspects that may contribute to their resolution.
For the implementation of postgraduate studies in this field, transdisciplinary collaboration between various disciplines is essential—not only at the level of information exchange but through active integration and intertwining of different methodologies and perspectives to arrive at innovative and sustainable solutions. The range of risks to both the environment and human health in modern society is expanding daily. Today, some of the most significant health risk factors did not even exist a few years or decades ago. For the same reasons, the approach to environmental and health risk issues has become increasingly challenging, even in developed countries.
In many critical situations related to environmental and human health protection, various countries have failed to provide adequate responses. Examples include increasingly frequent emergencies (floods, industrial and traffic accidents), air pollution, new mining facilities, COVID, food safety concerns, internet addiction, and social crises. One of the key reasons has been the lack of appropriately trained professionals capable of understanding these problems comprehensively and advising both the public and authorities on proper responses. An analysis of these challenges reveals the need for an educational system that produces experts capable of responding adequately to contemporary challenges in environmental and public health protection, through the acquisition of transdisciplinary knowledge.
Existing educational models in postgraduate medical education are not equipped to produce such professionals. Therefore, it is necessary to transform the educational process through direct intervention in the learning concept by implementing MCPB (Meta-Cognitive Problem-Based) modules. This transformation is operationalized through the use of problem-based blended learning blocks (TransBlox) which integrate transdisciplinary knowledge and complement theoretical and practical teaching within blended learning courses hosted on the Moodle platform. Within these modules, after the introductory text that defines the problem and research objective, each subsequent step includes guided questions tailored to solving the presented problem. These questions are designed to be interactive, allowing students to choose from offered responses or enter answers in designated fields. By responding to these guided questions, students gradually identify key components to clarify and, by following the logical sequence of inquiry, learn how to solve the problem systematically. The use of enhanced modules enables the integration of transdisciplinary knowledge into postgraduate medical curricula, ensures maximum objectivity in teaching and assessment, and enhances the transparency and democratization of the overall educational process.
Keywords: Transdisciplinarity, metacognition, postgraduate medical education