Interdisciplinarity: A Working Definition by Moti Nissani

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## Abstract

This paper will look at the definition of, and differences between, Moti Nissani's working definition of Interdisciplinarity and other approaches. The advantages and challenges associated with taking an interdisciplinary approach to problem-solving and its effectiveness. A look into the usefulness of Moti Nissani's article in showing new and aspiring students in understanding interdisciplinarity and its importance. Finally, a question is posed on the disciplined approach to interdisciplinarity.

*Keywords*: Moti Nissani, interdisciplinary, interdisciplinarity, discipline, effectiveness, interdisciplinary approach.

Interdisciplinarity: A Working Definition by Moti Nissani

Interdisciplinarity is described as "...bringing together distinctive components of two or more disciplines" in Moti Nissani's *Fruits, Salads, and Smoothies: A Working Definition of Interdisciplinarity.* As the addition of more ingredients is required to create a vast wealth of complex flavor, an increase in one or more of the interdisciplinary variables is required to create a more interdisciplinary rich outcome. Those four variables are: number of disciplines, the distance between them, novelty, and integration. With an increase in any one or all these variables, there is an increase in interdisciplinary richness. (Nissani, 1995) Though a question will be posed about creating a discipline out of interdisciplinarity, there is a distinction between the two in theory. A disciplinary approach will look at the object or research in question through a lens that is their training and desire for a specific outcome in their field of study. A multidisciplinary approach will just put together two or more disciplines with no thought to the richness discussed earlier. The interdisciplinary approach leads the researchers to think about many different outcomes, while adding different views from various fields of study on a quest to reach the most interdisciplinary richness attainable in their course of study or research.

# Advantages and Challenges of an Interdisciplinary Approach

In most cases, the expansion of perspectives and the inclusion of ideas from different fields of study give a more well-rounded view of the research or subject. Previously excluded ideas, through no fault of the researcher, only pure ignorance, start to add to the equation of progress. Nissani lays out a few past instances of interdisciplinary thought that has shaped our sciences. One of which is Kepler's first law of planetary motion. Kepler tried, with no luck, to fit mars in a circular orbit around the sun, as was known to be true at the time. When he eventually was able to take Apollonius's work on conic sections and Brahe's Mars data, he made his

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breakthrough. He was able to change his looking glass and incorporate multiple areas of research to reach an answer that changed the way our universe was viewed. (Nissani, 1995) This view of problem-solving may also be inputted into our work or personal lives to help take a more holistic approach to thinking. An example of this would be what it takes to fire a missile from a US Naval ship and consummate the engagement. If the final answer is to be able to use this ship to defend using missiles, a very interdisciplinary approach is required to mesh all of the parts of the system to reach the desired outcome. From the planning and engineering it requires to build the vessel, to the psychological and physiological aspects of the operators. From the computer systems to calculate and control, to the rocket science it takes to create and guide a missile in flight. So many factors must be thought of, and an interdisciplinary approach must be taken before the project is even started.

As with anything in life, there cannot be only positive. There are challenges involved with meshing disciplines together to create an interdisciplinary approach. In reference to Nissani's analogy of fruits, the fruits should not just be sitting on the same plate segregated by dividers, as a toddler's plate would suggest. In the same light, disciplines should not just be thrown into the same research but required to be disparate entities trying to arrive at the same outcome. Some may find this difficult to fathom, having another researcher in an entirely different field, tell them about "their" research. This is why when it comes to the interdisciplinary approach, the richness should be as high as possible. The four variables must come into play to create a smoothie, blended of many different fruits acting together to create a single novelty flavor (Nissani, 1995).

There are a few instances that a disciplinary approach may be preferable or more effective. If the point of the research is to prove or disprove a predetermined answer to a problem, it may be more effective to take a single approach to fully understand the means to reaching that answer. There may also be meaning in conducting disciplinary research if the point is not the answer, but to scrutinize and discuss the scientific method to achieve said answer. An equation in higher level mathematics does not need multiple disciplines to run a step-by-step analysis of the process to reach said equation.

## Nissani's Definition and a Degree of Understanding

Nissani's use of minimalist definitions and everyday items in his analogies makes for an easier to understand definition of interdisciplinarity and richness. It should be easy enough to understand interdisciplinarity as two or more disciplines being brought together. There is also a depth added in the discussion with the addition of a richness scale. If there is a check in the box for interdisciplinarity, then we must ask more questions. How many variables are met and what is the state of each of the four variables? With this, one can begin to judge just how rich their study or research is.

#### The State of Interdisciplinarity

Now, there is a question that must be asked moving forward in the discussion of interdisciplinarity. Is this path we are heading down going to make interdisciplinarity a discipline in itself? The short definition given by Marriam-Webster of a discipline is, "an area of study." (Merriam-Webster, n.d.) As most academic institutions begin to integrate interdisciplinarity they begin creating courses entitled Interdisciplinary Studies. Is this not becoming an area of study? Nissani's definition of a discipline is, "any comparatively self-contained and isolated domain of human experience which possesses its own community of experts." (Nissani, 1995) There are those within the sciences that fancy themselves Interdisciplinarians, though, for now, belonging to another field of study. Disciplines, though, "are time-dependent…today's discipline may have

well been yesterday's subdiscipline..." (Nissani, 1995) This furthers the question of whether interdisciplinarity is slowly becoming a discipline and what impact that will have on the theory and ideals that it represents.

# Conclusion

Nissani's initial minimalist definition of interdisciplinarity is given depth by his addition of variables to quantify richness. It is more broad yet including of all types of multidiscipline approaches and melds together when analogized with the Fruits, Salads, and Smoothies explanation. There are many advantages to this approach including a broader mindset and a more holistic method of research and study. The challenges mainly consist of adaptation and integration of other fields of study to one's own. The only open-ended question raised from this interdisciplinarity, is if we are slowly moving toward categorizing it as its own field of study, thus, making it a discipline.

# References

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