Atumics Methods Implementation: Work and Eat Activity Improvement in *Warunk Upnormal* as Study Case

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Abstract

This article aims to improve the quality of eating and working activities provided by restaurants/cafes in their indoor facilities by using one of the furniture objects in the *Warunk Upnormal* case study as study material. It starts by analysing consumer activities and their relationship to the facilities provided by the service provider. *Warunk Upnormal* in its marketing campaign informs about activities that can be accommodated by its consumers, including eating, gathering, working, etc. In a survey conducted on a sample of these consumers, it is stated that the dominant activities are eating, drinking, and working. With this background, data collection related to profiles, activities, and activity support facilities was carried out through direct observation and online surveys using convenience sampling techniques. The literature on dining table facilities as a medium that accommodates activities is also studied. Ergonomic data on dining and worktable artifacts, and supporting tools for eating, drinking, and working activities were collected. These data were analysed through the revitalization method of traditional design, called ATUMICS, where this method is a method used to design new artifacts with an innovation orientation that refers to certain intentions or goals. Dining table innovation supports eating and drinking activities, and this work aims to accommodate these activities so that they can be carried out comfortably and productively. Adjustment of ATUMICS elements is applied to the design, which includes elements of technique, utility, materials, concept, and shape. In conclusion, it is found that by using the ATUMICS method the dining table object in the restaurant/cafe can be adapted to the service facilities provided by the restaurant/cafe so that consumers can carry out their activities optimally.

Keywords: *Activities; Consumer; Design; Dining Table; Furniture; Innovation; Productivity*

Introduction

Cafés are places that provide facilities for gathering activities, and spending time (Ferreira & Beuster, 2019), but today the café is not only used as a gathering place for eating and drinking activities. Business actors in various business categories must be sensitive to changes that occur, making customer satisfaction the goal of their business orientation (Kotler & Keller, 2011; Kusmarini et al., 2020). The continuous development of lifestyle and human needs are variables that influence the development of café facilities to accommodate consumer needs. One of the lifestyles that are captured and become consumers in this place is the digital nomad lifestyle. Nomadic workers are defined as workers who travel in activities to meet clients, as well as with co-workers (Mark & Su, 2010). This lifestyle demands places that offer places of work and meetings to provide facilities that accommodate these activities. The addition of supporting facilities such as wifi and outlet points is one response to changes made by business actors so that they can adapt to consumer needs so that activities other than eating such as group or individual work, and meeting activities can be accommodated properly.

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The development of these facilities is related to the adjustment of furniture facilities in the cafe, this study takes one of the furniture facilities that is closely related to the main activity in the cafe, which is the dining table. The cafe dining table only accommodates eating and drinking activities, now with these developments, it is found that there is an increase in activities that occur at the dining table facilities. To accommodate supporting activities, it is necessary to adjust the facilities to support these activities. In meeting and working activities, consumers will bring work equipment such as laptops, bags, and accessories that will affect the shape and dimensions of the facility. Initially, the dining table was designed only to accommodate eating and drinking activities, then with work activities and meetings, these activities will also be variables that need to be considered in the creation of this dining table furniture design innovation. This article aims to prove how the implementation of the ATUMICS method can systematically produce innovations in interior design objects that have an impact on user activities.

Literature Review

To get facilities that suit consumer needs, innovation is needed in furniture facilities that can accommodate the needs of these various activities, where eating, drinking, working, and meeting activities can be carried out properly on the table facilities. Using the ATUMICS method as a basis for utilizing theory, study of methods to revitalize design, ergonomic theory to determine design results with predetermined standards, and study of universal design concepts used as direction for designing innovative products used to optimize eating and working activities

1. ATUMICS as Design Revitalization Methods

This innovation is carried out in the design process using a design revitalization method with the intensity of commercial needs. Using a method called ATUMICS, which is an innovation plan by transforms traditional values in modern culture into new objects (Nugraha, 2019). Turang in his research also emphasizes that this method is one of a series of efforts in maintaining traditional values that are applied in the context of design

(Turang & Turang, 2021). The intention of commercial needs was decided because the purpose of this innovation plan was oriented to the needs of consumers in their activities at the cafe, with the hope that the results of this innovation plan would affect increasing cafe income.

Figure 1. ATUMICS Methods of Transforming Tradition
Source: Nugraha, 2012
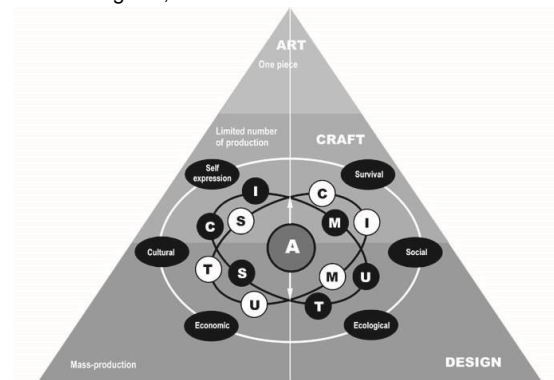
One of the types of information in the figure above is the position of the artifact to its object category (marked with an A icon), the category of mass-produced design objects, the category of crafts that are produced in limited quantities, and the category of single-produced art objects. The indicator for determining the position of the object is based on the number of units produced. The less production, the object is included in the category of art objects, on the other hand, the more production units (mass production) the object is included in the design object category. Among the categories of design objects and works of art are craft objects, which are objects that are produced in limited quantities. The next information in the picture above is the designer's intention towards object innovation planning activities, there are five categories of intentions recorded in this method which are (1) social intentions, (2) ecological, (3) economic, (4) cultural, and (5) self-expression intentions. Each of these intention categories will affect how the shape of the new object will be designed. The third piece of information in the image is a variable in an object, according to the name of this method, ATUMICS in each letter has its definition, A= Artefact, T= Technique, U= Utility, M= Material, I= Icon, C= Concept, S= Shape (Nugraha, 2019). These variables are elements that need to be identified first and then will become data that will be used as a reference in the analysis and planning of new design innovations.

2. Ergonomics

Panero and Zelnik in Human Dimension explained that the minimum size of the dining table to accommodate two people is 61 cm x 76.2 cm with the division of individual areas being 35.6 cm x 61 cm and the optimal size is 76.2 cm x 101.6 cm with the division of individual areas is 40.6 cm x 76.2 cm (Julius Panero, 1979)

Figure 2. Analysis of Standard Restaurant Dining Table Sizes
Source: Panero and Zelnik, 1979
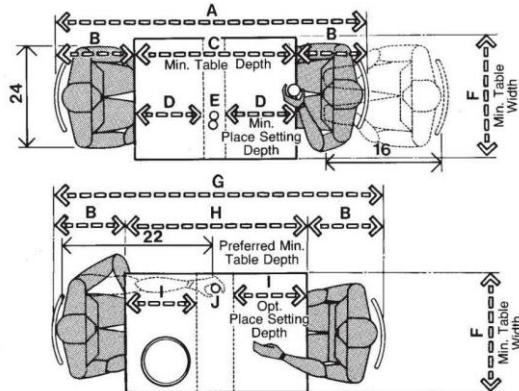
	in	cm
A	66–78	167.6–198.1
B	18–24	45.7–61.0
C	30	76.2
D	14	35.6
E	2	5.1
F	24	61.0
G	72–84	182.9–213.4
H	36	91.4
I	16	40.6
J	4	10.2
K	76–88	193.0–223.5
L	40	101.6
M	8	20.3

Figure 3. Analysis of Standard Restaurant Dining Table Sizes
Source: Panero and Zelnik, 1979
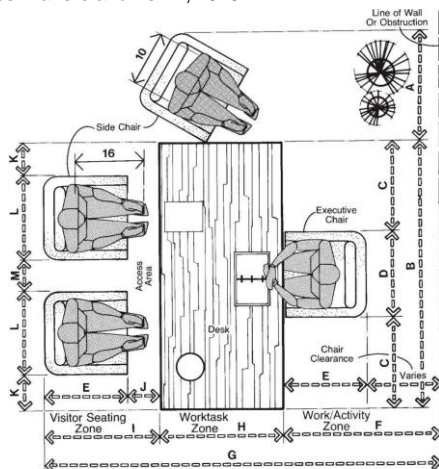
	in	cm
A	30–39	76.2–99.1
B	66–84	167.6–213.4
C	21–28	53.3–71.1
D	24–28	61.0–71.1
E	23–29	58.4–73.7
F	42 min.	106.7 min.
G	105–130	266.7–330.2
H	30–45	76.2–114.3
I	33–43	83.8–109.2
J	10–14	25.4–35.6
K	6–16	15.2–40.6
L	20–26	50.8–66.0
M	12–15	30.5–38.1
N	117–148	297.2–375.9
O	45–61	114.3–154.9
P	30–45	76.2–114.3
Q	12–18	30.5–45.7
R	29–30	73.7–76.2
S	22–32	55.9–81.3

3. Universal Design Concept

Limantoro explains that universal design is a design approach that is intended for all people (as users) in general, regardless of the physical boundaries, age range, and gender of the users, but still has certain limitations (Limantoro, 2014). He also explained that the fundamental concept of universal design is about designing products and environments that everyone can use, allowing additions, without the need for adaptation or specialized design.

Based on observations of 38 respondents, 91.9% of cafe visitors are generally in the age range of 16 to 23 years, the rest are >23 years old and are male and female. Triwinarto explained the results of the average height for age and sex groups based on the 2013 RKD results were for women aged 16-18 years was 153.7 cm, aged 19-29 years was 153.5 cm, and for men aged 16-18 years was at 163.2 cm, age 19-29 years 164.2 cm (Muljati et al., 2016). This becomes a physical limitation in designing cafe tables, especially at table height. Therefore, many people with these physical limitations can use the universal design concept.

Methodology

This research uses one of the main facilities of Warunk Upnormal as a case study, where this object is one of the cafes that popularizes work activities as one of its service facilities as an argument for its selection as a research object. For this reason, it would be better if the dining table facilities could accommodate the services offered by them. Optimizing dining tables that are oriented toward the activities offered is the

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aim of this research, also accompanied by new products as research outputs that can be used as recommendations by related industries. Using the ATUMICS method as a new product planning tool, where using this method requires a theory that supports the planning process.

The data collection carried out in this study aims to capture and understand the phenomenon from the participant's point of view (Creswell, 2017; Leedy et al., 2010; Onimisi, 2020), which in this case is the consumer of the café. The data will provide an overview of the problems of consumers who use the café as a place for eating and drinking activities and work, as well as a place to hold meetings. The sampling technique was online convenience sampling. Convenience sampling is a sampling method to select respondents (Hameed: Taherdoost, 2016). Consumers are the sample of respondents used in this survey, because the population of respondents is too wide, so the data results are more relevant to research purposes. The purpose of convenience sampling is to get an overview of the characteristics of different respondents.

After obtaining data on consumer characteristics from the results of online surveys through convenience sampling techniques, identification of the object of consumer activity facilities was carried out, namely the dining table. Existing dining table objects will be identified through ATUMICS variables, the dining table facilities are designated as old artifacts that will be studied and evaluated. Then it will be used as a reference for innovation activities for eating and drinking activities, and work as well as meeting activities. ATUMICS is also a method for updating traditional products or objects into modules acceptable in the current context. This method will create a product or system breakthrough with the aim that traditional products can continue to develop and be accepted by the modern market while maintaining traditional values that are not realized but are contained in them. With this method, the exploration of old artifacts will be more focused and not lose the essence of the artifact. The ATUMICS method in practice aims to identify old artifacts or objects that will be developed, also this method requires planners to identify new artifacts that are determined as objects with current values. The new artifact was identified based on the ATUMICS variable which will be used as a new element to be applied in the new planning object in this study.

The ATUMICS method defines the components of an artifact that can be modified according to the intentions of the designer, by identifying each component, it can be determined how modifications to some components can impact the user. The method can also be useful to increase the relevance of an artifact/product according to the advancement of the lifestyle of a particular community activity.

Result and Discussion

The origin of the ATUMICS method is to revitalize traditional artifacts into new objects that have relevance value according to the new target users, by breaking down the components so that they can be analysed separately. Through this use, the method can also be used to recode an object into another object that has new value. Furthermore, with this procedure, this method can be used for various design innovation activities of an object with all kinds of intentions. In this research, increasing productivity was the main intention in designing the new object.

In this discussion, several stages are carried out to obtain research results. 1) Identifying the activities of cafe consumers through observation with questionnaires. By knowing the activity, we can accommodate it in the design of new objects. 2) Next, to increase productivity in the above activities, it is necessary to analyse through literature review about the comfort of working in the cafe, which will be used as a reference in the design. 3) The main activity in this research, namely the design of new objects through the ATUMICS method with the aim of increasing work productivity. The last stage, 4) improvements offered in the design. This stage explains how the new object can accommodate the activities that have been identified and is expected to increase the productivity of its users.

1. Activities at Café

The collection of consumer characteristics data based on observations through online questionnaires was obtained by 38 respondents who are consumers of the cafe, of which 91.9% of cafe visitors aged 16-23 years with professions as students were 89.2%. Then for the types of drinks and food, 86.5% of respondents chose cold drinks, and for food, 60.5% of respondents chose the type of sharing food. For their luggage, as many as 86.5% brought cellphones and 78.4% brought laptops and chargers and 78.4% of

respondents carried out work activities with laptops while at the café. Mizanthi stated that changes in the behavior of the millennial generation can be seen in spending time at cafes to relax while eating, doing assignments, and hanging out with friends (Mizanthi, 2017). Pujianto stated that a cafe is not just a place to drink and eat, a cafe is a place where people gather to carry out various activities such as studying, doing assignments, to meetings (Pujianto et al., 2021). Based on these two statements, observations regarding consumer activity at the café were carried out, the results stated that 78.4% of the 38 respondents chose the activity of working with a laptop while at the café.

In addition, according to an online survey, 87.80% of respondents prefer to use public spaces such as cafes/coffee shops as places to work and discuss rather than offices or campuses. 40% of the respondents visited the cafe/coffee shop two to three times a week to work and discuss. 60% of respondents make cafes/coffee shops their favorite places to work and discuss. As much as 56.67% of the respondents use the cafe/coffee shop because of the atmosphere that is not rigid, the location is strategic and not boring for meeting points and is more flexible to move around. The remaining 43.3% said that the current workplace and campus facilities were not ideal. So that respondents prefer public spaces because they provide one-stop services, such as seats, wi-fi, sockets, and food and drinks.

Eating and drinking as the main activity offered by business actors is one of the variables taken into account in the analysis process. The following table describes some cutlery for sharing eating activities which form the basis for the dimensions of the dining area on the top table.

Table 1. Sharing Cutleries

Figures	Informations
Dimensions: ⌀18cm	Based on international standards for table manners, plates for side dishes and/or snacks such as french fries, sausages, and various fried foods use a dessert/appetizer plate because the plate is multifunctional.
Dimensions: ⌀26cm	Pizza is a main course where the plate used is based on international standards for table manners, namely a dinner plate which has a larger size than a dessert plate.

Source: Author

2. The Comfort of Working in a Café

Kolcaba explained that comfort as a condition has fulfilled individual and holistic basic human needs (Kolcaba, 1994; Ortiz et al., 2017). McCormick & Ernest emphasized that in shaping the comfort of a product or design, attention to the human factor plays an important role in creating a design with good ergonomics, which creates comfort for its users (Sanders & McCormick, 1993).

The activity of working in a café requires supporting equipment to accommodate these activities, laptops, accessories, and bags are common equipment brought by consumers. So the design of dining table furniture which mainly has a function to accommodate eating activities requires adjustments to accommodate these work activities, supporting facilities such as sockets, storage for storing luggage, and storage for placing drinks must be available. In addition, the dimensions of the individual table divisions are 80 cm long and 40 cm wide with the overall dimensions of the table having a length of 160 cm and 80 cm wide which are obtained by combining the ergonomic dimensions of dining tables and work tables in the Human Dimension book, so that needs are met and comfort is created for cafe visitors.

3. Design Innovation

Dining table furniture as an old artifact will be identified by its ATUMICS variables to become a reference for renewal. The following is the analysis for the existing furniture as the object of study:

Figure 4 Analysis of Standard Restaurant Dining Table Sizes
Source: Panero and Zelnik, 1979

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Table 2. ATUMICS Element Analysis on Old Artifact

Artifact	Dining table furniture for restaurant/ café.
Technique	Table legs as a construction use hollow steel which is cut according to the specified dimensions, then connected by welding techniques on the joints. This was then finished off with primer and black paint for the steel. Finally, make holes in certain parts to be connected to the table surface. The table surface uses concrete-wood or conwood material with water-based Polymer Acrylic finishing. Then it is connected to the table leg using SDS (Sell Drilling Screw) screws.
Utility	Tables for eating and drinking activities in restaurants with a capacity of four to six users.
Material	The table surface uses concrete-wood or conwood, and the table legs use hollow steel.
Icon	The table surface uses conwood, and the table legs use hollow steel. The dining table with a rectangular shape is repeated in each material used. The contrast between the material characteristics of conwood and iron.
Concept	The concept adapts to the atmosphere of the room, an industrial atmosphere that is dominated by the repetition of black color configurations made of steel material and the color of the wood grain.
Shape	The geometric shape was obtained from a rectangle with dimensions w: 120cm, and l: 60cm, h:75cm.

Source: Author

The artifacts above are used as objects of reference for innovation activities that will be carried out in this study. This artifact is a dining table furniture in a restaurant/café, where this café also accommodates work activities on the facilities in its rooms. Activities in the space offered by the café require furniture that can also accommodate eating, drinking, and working activities. Therefore, this innovation is needed, to accommodate these activities. In the object analysis above, utility and shape variables are the most influential variables in the innovation design activity. The addition of work functions to the new object is the main intention in the design so that the shape of the new object will suit the needs of the activity.

Table 3. Analysis of the Design Elements Offered in the New Object

|	
Technique	The technique for making a top table begins with cutting wood, then wood is shaved, then making obtuse corners on the top table using a round over bit trimmer profile, and finally the finishing stage with 3-4 layers of varnish. Then for the copper

tabletop, it starts with cutting it accordingly, then finishes it with a black oxidation finish with a semi-doff coating.
The technique of joining steel legs to a wooden table using iron plates and screws.
The table legs used are hairpin legs with 3 layers.
Technique for joining wood and copper tabletops using epoxy adhesives.

Utility	Table for eating, drinking, and working activities with a capacity of 4 users.
Material	The table surface uses teak wood with a lacquer finish and black copper with an oxidation process for the finishing process. The table legs use iron hairpin legs with a powder coating finish.
Icon	The silhouette of the table surface that forms the letter U in the center becomes the center of attention of the entire object of this artifact.
Concept	Universal concept with certain limitations on space facilities.
Shape	Symmetrical geometric shape with dimensions of length: 160cm, and width: 80cm.

Source: Author

The table above analyses old artifacts and the novelty value offered to new object innovations. From this analysis, the process of combining variables between old objects and new object ideation will be carried out, as follows:

Figure 5. ATUMICS Merging Process
Source: Author

T: Technique
U: Utility
M: Material
I: Icon
C: Concept
S: Shape
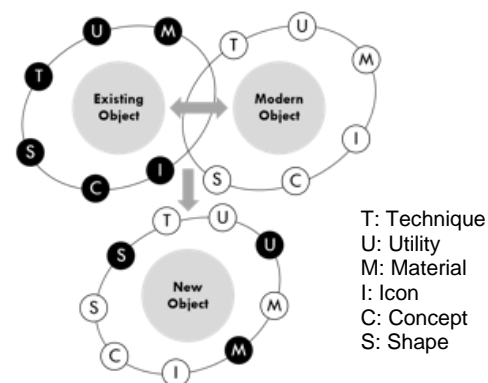
The elements of the existing object that are maintained are the use of iron (M) material on the legs, the (U) utility of the object as an accommodation for eating and drinking activities, and the basic (S) shape of a rectangle with dimensions for four users. The elements that are changed in terms of (S) shape are the size of the table, the shape of the table legs, and the (I) icon resembling the letter "U". The table surface

material is added copper plate material for certain needs, as well as a new (C) concept offered in the form of a universal concept.

4. Improvements Offered on the Design Results

Aiming to accommodate the activities of space users, all the variable elements of the artifacts have changed. However, two variables of furniture elements have a significant impact on this innovation activity. Based on the analysis that has been done, observations of user activities on existing objects show that function variables cannot accommodate user activities. The product design form has also changed, this change has an impact on the icon element variables.

Figure 6. Design Results
Source: Author

Figure 7. Table Area Distribution Analysis
Source: Author

The picture above is the distribution of areas on cafe tables intended for work and eating with the type of food sharing, and the division of individual areas on cafe tables intended for work and eating with the type of food sharing and an analysis of the division of the table area, two main activities are accommodated on the top table, which are eating and drinking activities, and working activities with laptop facilities / other individual work facilities. The green color zone is the area closest to the user, which is the corner area. The area is used to accommodate work facilities, while the red zone in the middle is used as a food-sharing container. Then the following is an analysis of the object of innovation at the foot of the table.

Conclusion

Improving user productivity as the main goal in this design is implemented by improvising ATUMICS components in the existing object in the case study. After analyzing, the function, and form components are 2 components that turned out to have a big role in the design of the new object. Next, the material component is also adjusted to the needs in user activities. In carrying out work activities, users bring certain work equipment which in the existing condition is not accommodated so that it disrupts their work productivity, by accommodating these things, increased productivity can be achieved. User habits in placing food and beverage orders also affect the design of this new object. All of the above are tried to be accommodated in the new design, until there is a new design that suits the needs of users in carrying out work activities while eating and drinking.

For future research, there is a need to create a prototype of this research for evaluation related to increasing productivity in work and eating and drinking activities. By creating the prototype, it will be possible to make continuous improvements for the next stages. Research on more specific work activities, such as meeting work activities, presentations at cafes will also produce products that are different from those produced in this study. However, this research is a starting point for how dining table objects in cafes can accommodate work activities that are also productive.

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