

Distributive Justice of Resource Allocation Through Artificial Intelligence

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Abstract

Artificial intelligence will take over leadership functions such as rewarding employee performance. It will therefore make decisions about employee outcomes and most likely allocate different resources to employees. Resource Theory of Social Exchange distinguishes six resource classes. The theory postulates that the value of some resources depend on the identity of the provider of the resource and on the relationship with the provider. This raises the question of whether certain resources, such as the resource affiliation, have a value when they are allocated by artificial intelligence. This contribution calls for studies that investigate the value of different resources allocated by artificial intelligence in leadership functions.

Keywords: distributive justice, artificial intelligence, Resource Theory of Social Exchange

1. Background

Current research discusses that artificial intelligence (AI) will take over leadership functions and will manage human employees [1, 2]. One important leadership task is motivating personnel resources, which includes rewarding employees for their performance [1]. This means that AI will make decisions about outcomes employees receive for their work as rewards.

Research shows that in decision-making, the perceived appropriateness of outcomes is important to people affected by the decision [3]. According to the literature, the outcome of a decision is perceived as appropriate if it reflects specific allocation principles, e.g. equity rule (the outcome reflects the effort someone has put into their work and is perceived as appropriate for the completed work) or equality rule (everyone gets the same) [4, 5]. Meta-analyses

[3, 6] show that the appropriateness of outcomes, referred to as distributive justice, is related to important work-related variables such as trust in the supervisor, employees' affective states and task performance.

While there has been a major focus on *how* outcomes have to be distributed to be appropriate, there has been too little focus on *what* is distributed. Resource Theory of Social Exchange [7] can be used to focus on *what* is distributed. This theory describes six resource classes that can be exchanged by two parties. The theory differentiates the following resource classes: status, affiliation (also referred to as love by [7]), services, information, money, and goods [7, 8]. Status is defined as an evaluative judgment that conveys prestige, regard, or esteem [7]. Affiliation is an expression of affectionate regard, warmth, or comfort [7, 8]. Services describes activities that affect the body or belongings of another person [7]. Information is advice, opinions or, instruction [7]. Money is any coin, currency, or token [7]. Goods are tangible products, objects, or materials [7]. The theory postulates that the value of status, affiliation, and services is influenced by the identity of the provider and the relationship with the provider, which is called particularism [9]. This is not postulated for the value of information, money or goods. According to the theory affiliation and money are maximally distinct in terms of particularism. This means that the value of affiliation depends heavily on the identity of the provider, while the value of money does not [9]. An example of affiliation allocated by a manager is an expression of congratulation for personal achievements [8]. An example for money provided by a manager is overtime compensation [8].

A very important employee behaviour is that employees exert great efforts to achieve good work performance. A crucial question is therefore how managers reward those efforts and the performance of their employees. We want to investigate distributive justice perceptions in reward allocation, where employees receive different resources from their manager for their efforts and performance.

AI as a new leadership entity poses the question whether the resources that depend on the identity of the provider have the same value for AI as for a human manager. This could be particularly crucial for the resource affiliation because employees who receive affiliation from an AI may question whether the AI understands the value of affiliation. Therefore, we also want to investigate whether the value of some resources is lower for AI as the resource provider. We will begin our investigation by comparing the reactions to affiliation and money, two resources that differ most in their dependence on the one who provides them.

2. Planned study

To test distributive justice perceptions in a reward allocation scenario, we propose the following experimental vignette study. In the study, participants will read the description of a situation in which they receive either less money or less affiliation (independent variable 1: resource) than a colleague who has shown less work effort than them. In the described scenario, the value of the resources would be indicated by which resource causes stronger negative reactions. According to the equity rule and the equality rule, the outcomes described in the vignettes are unfair, but it is not clear whether receiving less money or less affiliation results in lower distributive justice perceptions. Affiliation/money will furthermore be distributed by an AI/a human manager (independent variable 2: resource provider). This allows us to test whether the value of the resources depends on the identity of the provider. In the scenario in the vignettes, we expect lower distributive justice perceptions, when affiliation is allocated by a human manager than by an AI. We will measure distributive justice perceptions, negative affect and future work effort of participants as the dependent variables. Furthermore, we will ask participants whether they think that a human manager/an AI understands the value of affiliation/money.

3. Outlook

The next step is to conduct the study. The results will have implications for research on the perception of distributive justice in automated decision-making, as the vignette study considers the impact of different resources and the interaction effect of resource and resource provider. This is something that, to our knowledge, has not yet been investigated in research on automated decision-making. Previous studies have only compared the reactions to human and automated decision-making or the effect of different allocation principles in automated decision-making (see [10] for a review). Furthermore, our study introduces the Resource Theory of Social Exchange into the context of automated decision-making, which could inspire future studies to investigate the allocation of different resources by AI.

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